



ESTABLISHING A CAREER DEVELOPMENT PLAN FOR THE
SYSTEM SUPPORT MANAGER
THESIS

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AFIT/GAQ/ENV/01M-09

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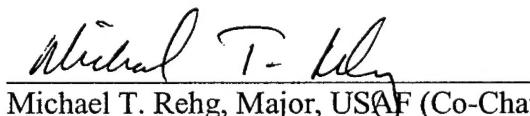
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Abstract

Career development plans are created to assist individuals in establishing their career objectives. The most commonly used career path model is the pyramid career model. It identifies the ideal job experiences, training, and education needed to reach career success. Although the model seems to provide everything needed to succeed, it fails to answer why the experiences identified are important. The answer to that question can be found in the competency model.

This thesis looked at how the pyramid career model and competency model can be used to groom individuals. The variables that contribute to overall job performance and the competencies that lead to managerial success are also reviewed. The research specifically focused on one position—the System Support Manager position. The objective of this research was to establish a career path model and competency model for the System Support Manager in a way that avoids the limitations of current career path models.

ESTABLISHING A CAREER DEVELOPMENT PLAN FOR THE SYSTEM SUPPORT MANAGER

I. Introduction

General Issue

The efficient use of resources is one of management's primary concerns. The most important resources available to managers are human resources. As organizations get increasingly involved in more complex technologies, they become more dependent on their people. Having the right number of people is not enough. Organizations also need to ensure their people have the proper knowledge and skills necessary to effectively perform their jobs. Establishing career paths can help identify the desired job experiences, training, and education that will help individuals obtain the knowledge and skills needed to develop, grow, and reach career success. As organizations change the way they do business, career paths become more critical for organizational and individual success.

The Air Force understands the importance of career paths. The Air Force Career Guide provides career paths for various Air Force positions. However, the guide only includes career paths for positions specifically assigned Air Force Specialty Codes. This exclusion leaves several positions in need of career guidance; the System Support Manager (SSM) position falls under this category. The SSM, who is responsible for the sustainment of Air Force systems, plays a crucial role in meeting the Air Force Materiel Command's mission to "...acquire and sustain superior systems in partnership with customers and suppliers" (Airman Magazine, Jan 01). The goal of this research will be to

provide the SSM with the career guidance it needs to better satisfy and meet its mission.

Although the SSM position is held by both military and civilian employees, the complexity of the civilian career advancement system and the time limitations placed on the researcher has led this research to focus on the military position.

Background – Air Force Materiel Command

In 1985, President Reagan established his Blue Ribbon Commission on Defense Management, known as the Packard Commission, to study the issues surrounding defense management and organization. This was done in part because public confidence in the effectiveness of the defense acquisition system had been shaken by a series of “horror stories”—overpriced spare parts, test deficiencies, and cost and schedule overruns (Packard Commission Report, 1986:41). The Packard Commission’s report, released in 1986, recommended some changes in program management responsibilities and a general streamlining of the acquisition process.

The Defense Management Review was initiated in 1989 as a response to the Packard Commission. It issued 38 recommendations which were expected to save approximately \$39 billion over five years (Elliott, 1991:5). On 1 July 1992, in response to these recommendations, the Air Force Systems Command and Air Force Logistics Command were combined to form the Air Force Materiel Command. Then Secretary of the Air Force, Donald B. Rice, stated, “combining the commands will produce long-term savings in the cost of acquiring and supporting weapon systems” (Bond, 1991:26). At the heart of the Air Force Materiel Command was a new process—Integrated Weapon System Management (IWSM)—a management philosophy for acquiring, evolving, and

sustaining products (AFMCP 800-60, 1993:9). The new process had three major objectives—provide “cradle-to-grave” management, establish a “single face to the user,” and create “seamless organizations” (AFMCP 800-60, 1993).

Prior to the merger, the most significant “seam” in the management of a weapon system was the division of the acquiring and supporting organizations into separate commands (Coronado and Kwiecinski, 1994). The process of Program Management Responsibility Transfer moved weapon system management from the developing command, Air Force Systems Command, to the supporting command, Air Force Logistics Command. Under this management approach, there was no overall single manager for a system. Several organizations managed the system throughout its life cycle. This fragmented control not only forced the user to work with several different organizations, but it often left the Air Force Logistics Command paying the support bill for a system that was not built for support. Although program managers were expected to address support issues during weapon design and production phases, they did not have responsibility for the long-term support of the weapon systems. Therefore, when it was time to make requirement tradeoffs, it was easy for the program manager to forget about support issues (Ward, 1993:13).

The creation of Air Force Materiel Command and IWSM eliminated the Program Management Responsibility Transfer by making one individual responsible for the entire life cycle of a system. This “single face to the user” was the System Program Director (SPD). The SPD is the individual ultimately responsible and accountable for decisions and resources in overall program execution (AFMCP 800-60, 1993:249). General Charles McDonald, last commander of Air Force Logistics Command, claimed the single

manager approach would strengthen reliability and maintainability initiatives by “eliminating cultural differences that existed between the research and development and logistics communities in years past” (McDonald, 1991:58).

Successfully implementing IWSM, however, is not just a matter of establishing initiatives or regulations. The key to successfully carrying out these improvement efforts rests with the people—the defense acquisition workforce.

Defense Acquisition Workforce

The complexity of system acquisition and sustainment demands a well-qualified and educated acquisition workforce. In its 1986 report, the Packard Commission described the acquisition workforce as “undertrained, underpaid, and inexperienced” (Packard Commission Report, 1986:66). In response to this, the Defense Management Review recommended better training and experience requirements for individuals in key acquisition positions. Based on that recommendation, the Defense Acquisition Workforce Improvement Act was passed. It required DoD to formalize career paths for personnel in the acquisition career field in order to develop a skilled professional workforce.

Career paths for various acquisition positions can be found in the Air Force Career Guide. The guide specifically provides two career paths to help groom individuals to the Deputy SPD position—the Acquisition Management Career Path and Developmental Engineering Career Path. Although both the SPD and SSM are critical to meeting the Air Force Materiel Command’s mission, the Air Force Career Guide does not include a career path for SSMs. The main reason for this is that the SSM position does

not have its own Air Force Specialty Code. Individuals assigned to SSM positions come from various career fields—acquisition, logistics, and engineering. The lack of a career path and Air Force Specialty Code has also created some debate as to whether the SSM career path should follow those in the logistics career field or the acquisition career field. This research hopes to answer that question.

Research Objective

The objective of this research is to develop a career path for SSMs in a way that will avoid the limitations of current career paths. Although the career paths found in the Air Force Career Guide help guide individuals to career success, they do not provide the complete picture. The career paths offer answers to two questions—What and When. They identify the desired job experiences, education, and training that will help individuals reach exceptional careers, and identify the stage when it is best for individuals to obtain those experiences. Answering those two questions is not enough. In order for individuals to get the most out of those experiences, they also need to understand why those experiences are important.

Outline of Thesis

This thesis contains five chapters—Introduction, Literature Review, Methodology, Findings and Analysis, and Conclusions. Chapter 1 discusses the background and approach in order to focus the research question. Chapter 2 introduces the pyramid career path model and its limitations in grooming individuals to specific job positions. Pertinent information on managerial competencies and job performance variables are reviewed to construct a theoretical framework around the research. Chapter

3 begins with a description of the interview method used to collect the data. A description of the method that will be used to organize and analyze the data is also described. Chapter 4 presents the results of the data analysis. Chapter 5 translates the findings in Chapter 4 into the SSM Career Path and Competency models. The results provide a tool for grooming individuals for the SSM position.

II. Literature Review

Chapter Overview

This chapter begins with a brief background on career paths as a tool for career progression. Two examples of Air Force career paths are presented. The chapter also addresses the failing of these models to focus on why certain experiences are considered relevant at various stages. This is followed with a discussion of the variables that contribute to overall job performance and the competencies that lead to managerial success. The introduction of the competency model as an alternate tool for career progression is also addressed.

Career Path Model as a Tool for Career Progression

Pyramid Career Model. According to the Acquisition Career Path Guide (1994), the purpose of career paths is to identify the job types and experiences relevant for a particular specialty. One of the most common career path models in use in the military and civilian sectors is the pyramid career model, a time-based and experienced-based multi-layered triangle. The model identifies the career patterns that will enable individuals to develop the appropriate knowledge and skills needed to move up the organizational ladder. Implicit in this model is the concept that career development consists of moving as rapidly and as far up the pyramid as possible (Dalton, Thompson, & Price, 1982:131). The shape of the pyramid also implies that only a portion of individuals will progress to each successive level.

Dalton et al. (1982) found that career path models can be divided into four stages. Each stage differs from the other in the work individuals perform. In Stage I, individuals

learn to perform some of the organization's tasks competently. They begin to accumulate experience and strengthen their knowledge and skills. They are also closely supervised by a more experienced person. In Stage II, individuals become more independent. They are more technically competent and rely less on their supervisors for direction. In Stage III, individuals take responsibility for their subordinates' work. They find the need for interpersonal skills in setting objectives, delegating, supervising, and coordinating (Dalton et al., 1982:142). In this stage, individuals may also find themselves doing less technical work. In the final stage, Stage IV, individuals learn to think about the organization as a whole—the “big picture” view. They find themselves forced to use their power because others depend on them to fight for their programs (Dalton et al., 1982:144). The concept of career stages not only helps individuals think more clearly about what they should do and learn in their present job, but it also lets them know what they should do if they want to advance to another stage.

Benefits and Uses of Career Paths. Career paths document possible patterns of job movement that an employee might follow. Primary responsibility for career management lies with the individual, but the organization can do things to facilitate career development. Organizations first need to develop a solid understanding of their human resources—number of people in each career field, turnover ratio, and job opportunities available. They can then use that information to continuously groom and develop their employees. They can provide employees with opportunities to excel and grow. Organizations can also use career paths to respond to employee questions concerning likely career progression. A study conducted by Kotter (1982) found that it

takes people 10 to 20 years to develop managerial skills. Having the proper guidance may help ensure individuals develop those skills.

Air Force Career Guidance. The Air Force understands the importance of providing its people guidance on career progression. The Air Force Career Guide includes career paths for various Air Force specialties. The guide specifically makes use of the pyramid career model. The model is broken out by stages based on rank and years of service. The front of the triangle identifies the ideal job experiences for each stage of the individual's career. The side of the triangle identifies the preferred training and education for each stage. The shape of the pyramid implies that following the career path presented somehow increases an individual's chances of progressing until he or she achieves an "exceptional career."

The stages in the model resemble those found by Dalton et al. (1982). As Lieutenants, individuals lack experience; therefore, they are closely supervised. As they move up to the rank of Captain, they become more independent and require less supervision. As Majors, they assume responsibility for the work of their subordinates. Finally, as Lieutenant Colonels, they make decisions that affect the entire organization.

SSM Career Guidance. Although the Air Force Career Guide includes various career paths, it excludes positions not assigned Air Force Specialty Codes. This exclusion leaves several positions without any career guidance, including the SSM position. The SSM is the individual responsible for sustainment when the SPD, the person he or she reports to, is located at another center (AFMCP 800-60, 1993:261). Individuals assigned to SSM positions come from various career fields to include acquisition, logistics, and engineering. The lack of an Air Force Specialty Code has also

created some debate as to whether the SSM career path should follow those of the logistics career field or the acquisition career field. Figures 1 and 2 present examples of two career paths, the Acquisition Management Career Path and the Supply Operations Officer Career Path. These two career paths are representative of the career paths found in their specific career fields. The goal of this research is to develop a career path specifically for SSMs. The career path will then be compared to those found in Figures 1 and 2.

Limitations of the Pyramid Career Model

The pyramid career model identifies ideal job experiences, training, and education, as well as the best time when those experiences should be pursued. Everything appears to be plainly laid out for individuals; all they would need to do is make it happen. Still, the pyramid does not present the complete picture. It fails to state why each job experience, training, and education is important and what individuals are expected to learn from each experience. If an individual sees a position that is meant to be developmental as a demotion, he or she may learn a lot, but it may be little of what the organization had hoped. However, knowing why one is being assigned to a job, what it is hoped will be learned, and what will happen next can make all the difference.

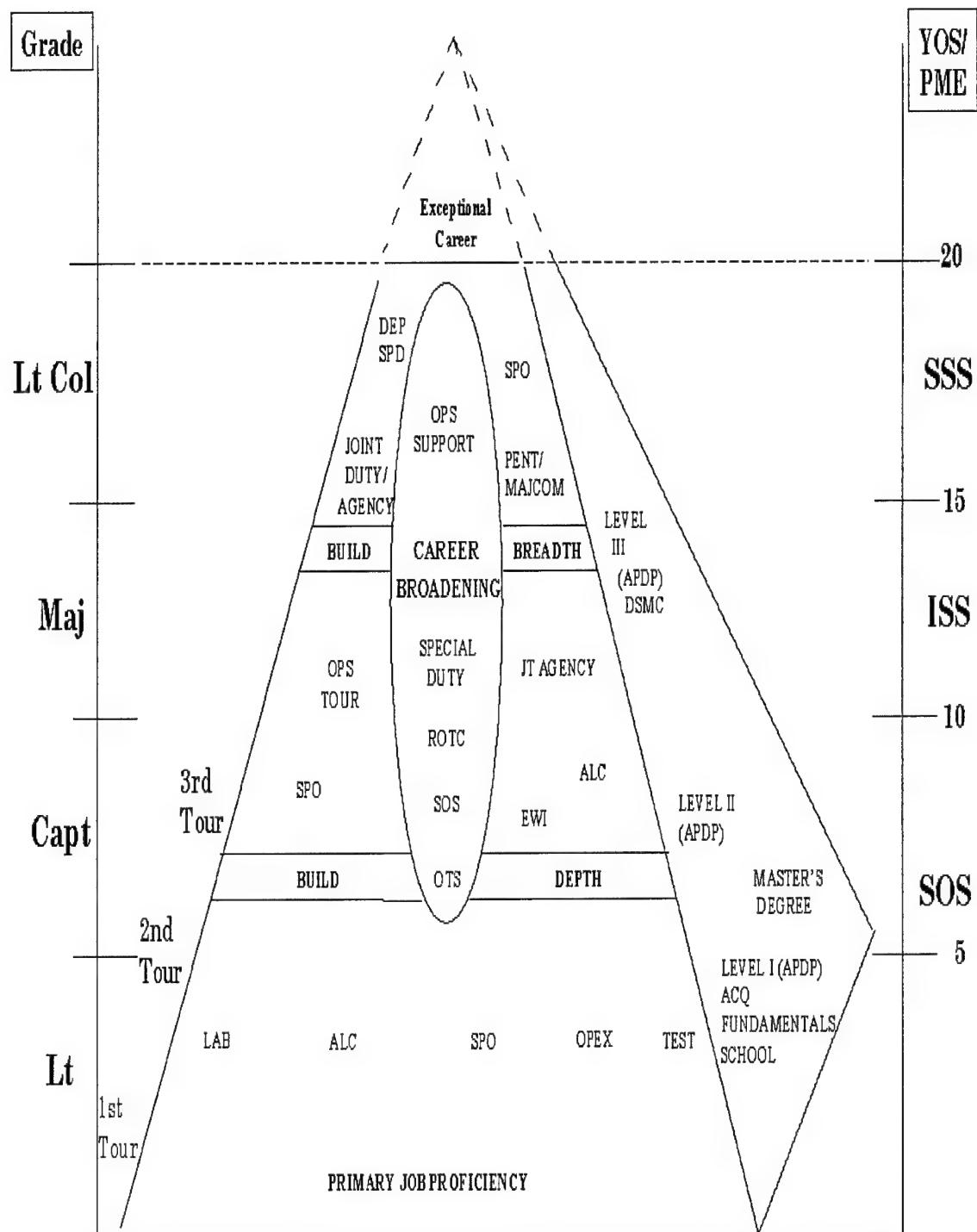


Figure 1. Acquisition Management Career Path. From *Air Force Career Guide*, (n. pag.), www.afpc.randolph.af.mil, 24 Jul 00.

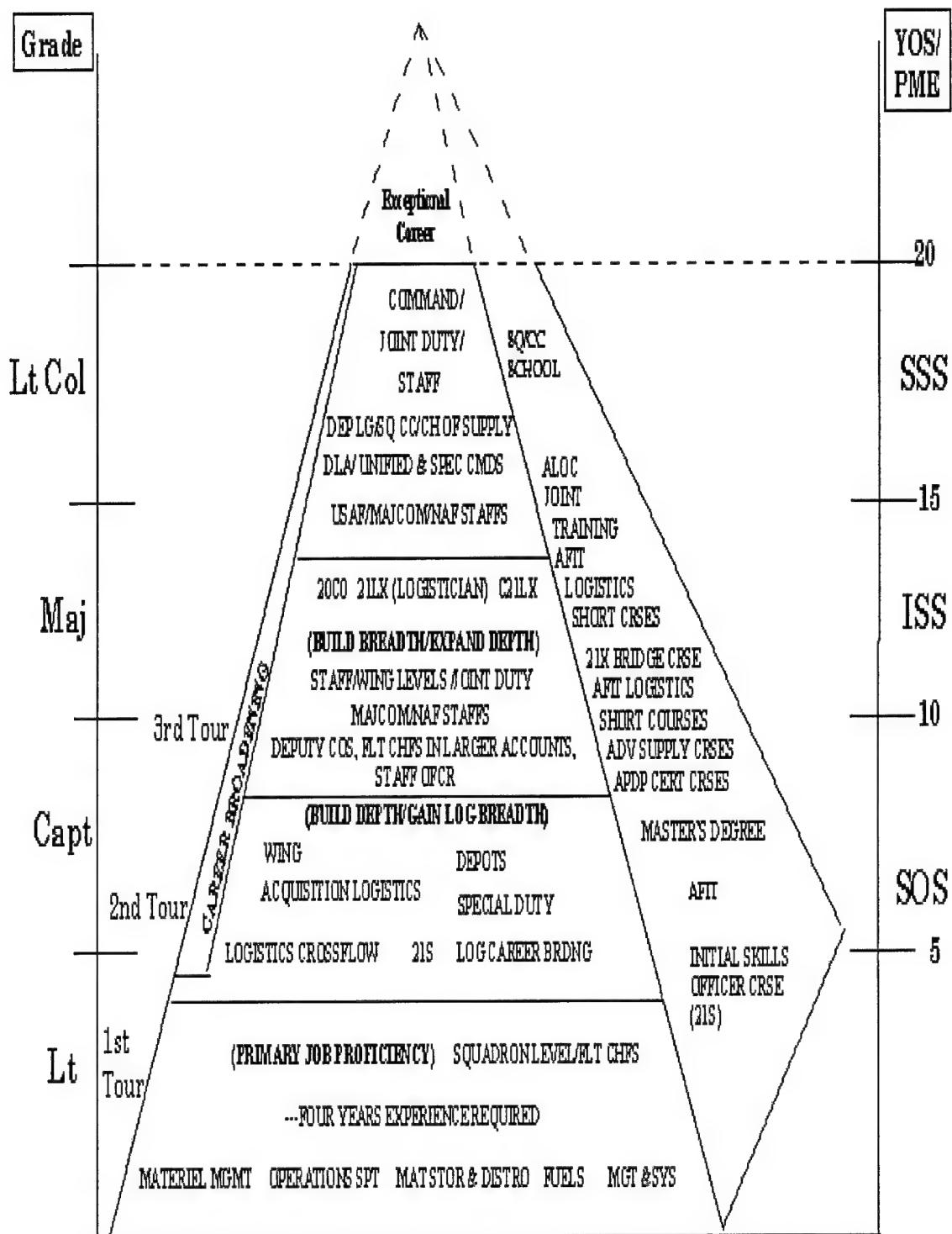


Figure 2. Supply Operations Officer Career Path. From Air Force Career Guide, (n. pag.), www.afpc.randolph.af.mil, 13 Jan 01.

According to McCall (1992), the single biggest waste of learning opportunities results from a failure to specify what it is one hopes is learned from an experience—specifically, what leadership-relevant skills are potentially taught (29). Therefore, in order to properly help guide individuals to specific positions, the career paths must also include competencies, which are the knowledge and skills that should be learned from each experience.

McLagan (1997) found four ways to define competencies: 1) attributes people have in the form of knowledge, skills, and attitudes, 2) tasks and activities people perform, 3) outputs people produce, and 4) results of the outputs for organizations. Skill is having performed the work; knowledge is knowing how to perform the work but not having performed it (Clifford, 1994:326). McLagan also defined competencies as attribute bundles and differentiators. Attribute bundles are clusters of knowledge, skills, and attitudes; attribute differentiators are the knowledge, skills, and attitudes that distinguish superior performers from others (McLagan, 1997:42).

Job Performance Variables

To understand the importance of competencies to career advancement, it will be necessary to identify how knowledge and skills impact overall job performance. First, job performance can be broken into two areas—task performance and contextual performance (Borman and Motowidlo, 1993). Task performance consists of activities that are part of a worker's job; contextual performance consists of non-job-specific activities. Borman and Motowidlo suggested that the major cause of variation in task performance is the proficiency with which a person carries out task activities; therefore,

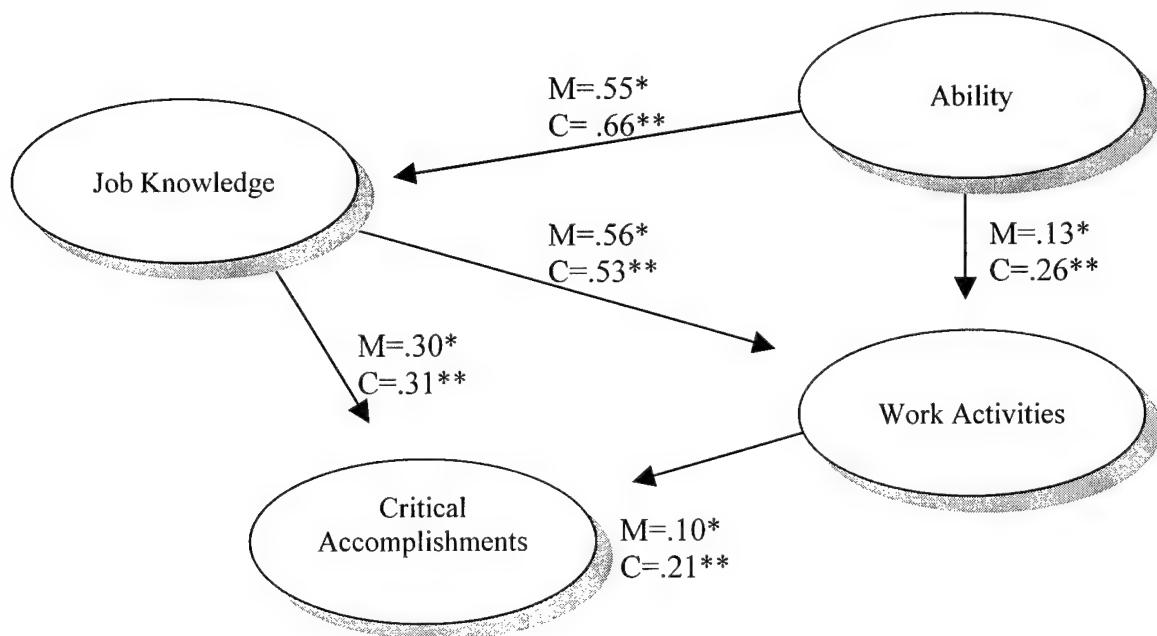
individual differences in knowledge, skills, and abilities should covary with task performance (1993:74). Motowidlo and Van Scotter (1994) confirmed that both task performance and contextual performance contribute independently to overall job performance. Their study, which focused on nonmanagerial positions, also found that experience is more highly correlated with task performance, and personality variables are more highly correlated with contextual performance (Motowidlo and Van Scotter, 1994:475). Conway (1999) confirmed Motowidlo and Van Scotter's findings using managerial positions.

Hunter (1983) investigated the correlations between three variables: ability, job knowledge, and performance. His study, which examined both military and civilian employees, found that the major causal impact of ability was on the acquisition of job knowledge. Job knowledge, in turn, had a major impact on critical accomplishments as assessed by work activity measures (Hunter, 1983:265). Figure 3 shows the effects of ability and job knowledge on work activities and critical accomplishments.

The effect of age and total years of experience on job performance was also examined (Aviolo, Waldman, and McDaniel, 1990). Experience was found to not only be a better predictor of performance than age, but that it was more favorable in highly complex positions than less complex positions (Aviolo et al., 1990:416). Job experiences were also found to contribute considerably more than classroom training programs to the development of senior managers (McCall, Lombardo, and Morrison, 1988).

McDaniel, Schmidt, and Hunter (1988) also examined the effect of job experience on job performance. For all levels of job experience and for both low- and high-complexity jobs, the correlation between job experience and job performance was

positive (McDaniel et al., 1988:329). However, the correlation was higher with low-complexity jobs than high-complexity jobs. McDaniel et al. suggested the reason for the difference was that in low-complexity jobs, job experience is often the only source of job knowledge, whereas in high-complexity jobs, job knowledge can be obtained through both formal education and job experience (1988:330).



* M = Military Data Path Coefficient

** C = Civilian Data Path Coefficient

Figure 3. Effect of Job Knowledge and Ability on Work Activities and Critical Accomplishments. From “Impact of job experience and ability on job knowledge, work sample performance, and supervisory ratings of job performance,” *Journal of Applied Psychology*, 71 (p. 438), by Schmidt et al., 1986.

Managerial Competencies

Competencies are essential elements of all career paths. They identify the knowledge and skills individuals are expected to learn from each job experience, training, and education. In order to properly build a career path for SSMs, it will be important to identify the competencies that are characteristic of successful managers.

Managerial competencies. As individuals move up the organizational ladder, they make the transition from technicians to managers. Dewhirst (1991) found that some individuals have problems making that transition. Problems primarily stem from the changes of coordinating efforts and working with diverse people. Individuals having difficulty also find they cannot get enough information absorbed in their heads to make all the decisions. Instead, they find themselves increasingly having to manage the process of decision making, “bringing the right people together around the right questions or problems, stimulating open discussion, ensuring that all relevant information surfaces and is critically assessed, and ensuring that out of this process, a good decision will result” (Schein, 1982:4). Interpersonal skills such as leadership, communication, conflict resolution, sensitivity to emotions, and motivations not only help individuals with this transition, but are critical for all managers to have (Dewhirst, 1991:91).

Assignments were also found to be important in a manager’s growth. Margerison and Kakabadse (1984) conducted a survey of more than 700 chief executive officers in a variety of industries in order to determine how to develop potential executives. Their results emphasized the need to expose young executives to leadership experiences early in their career and to combine those experiences with tasks in which they can exercise their personal drive, determination, and ambition (Margerison & Kakabadse, 1984:10).

The main reason for exposing them to leadership experiences early is that college courses do not fully prepare individuals for management responsibilities. This finding reinforces the need for career paths.

Margerison and Kakabadse's (1984) study also revealed the need to pay more attention to personal and interpersonal factors in selecting potential top executives. A need to achieve results and interpersonal skills combined with an environment of challenge and opportunity were found to be the basic ingredients for developing executives (Margerison & Kakabadse, 1984:10). This supports the findings by Dewhirst (1991) and Schein (1982). Table 1 lists some of the traits and skills differentiating leaders from nonleaders.

Table 1

Traits and Skills Differentiating Leaders from Nonleaders (Yukl, 1998:237)

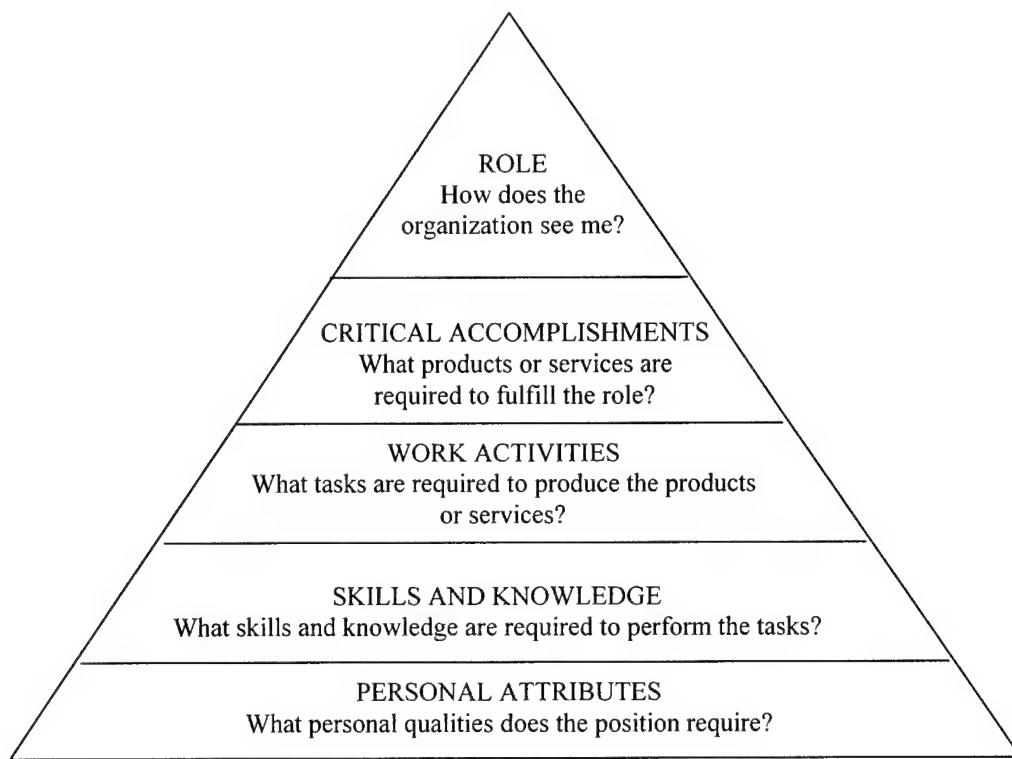
<u>Traits</u>	<u>Skills</u>
Adaptable to situations	Clever (intelligent)
Alert to social environment	Conceptually skilled
Ambitious, achievement oriented	Creative
Assertive	Diplomatic and tactical
Cooperative	Fluent in speaking
Decisive	Knowledgeable about the work
Dependable	Organized (administrative ability)
Dominant (power motivation)	Persuasive
Energetic (high activity level)	Socially skilled
Persistent	
Self-confident	
Tolerant of stress	
Willing to assume responsibility	

Competency Model as an Alternate Tool for Career Progression

The importance of job competencies is not something new. Job competencies have been studied for many years. The *Training and Development Journal* published its first article on job competencies in December 1980. However, it was not until recently that competency models were introduced as an alternate tool for career progression.

In 1996, Ritkin, Fineman, and Ruhnke (1999) were tasked by a group of human resource managers with identifying the characteristics of an effective technical manager. They found that the best tool they had to tackle the issue was the competency model. They chose the competency model because the process of building the model was reasonably objective and did not rely on intuition and serendipity (Ritkin et al., 1996:53). In order to build their competency model, Ritkin et al. collected their data by interviewing technical managers from five different companies. The interviews focused mainly on the managers' interactions with individuals other than their subordinates. Ritkin et al. used the competencies identified in their study to build a model that represented how the competencies interrelated (see Figure 4).

At the top of the pyramid is the role; followed by critical accomplishments, which are the products and services needed to fulfill the role; work activities, which are the tasks required to complete the critical accomplishments; skills and knowledge required to complete the tasks; and personal attributes. Ritkin et al.'s model and McLagan's (1997) definitions of competencies are similar in many ways (see Table 2).



*Figure 4. Competency Model. From “Developing technical managers—First you need a competency model,” *Research Technology Management*, 42 (p. 54), by Ritkin et al., 1999.*

Table 2

Comparison of Ritkin et al.’s (1999) Model and McLagan’s (1997) Definitions of Competencies

Ritkin et al.	McLagan
Role	→ Results beneficial to organization
Critical accomplishments	→ Outputs
Work activities	→ Tasks and activities
Skills and knowledge	→ Knowledge, skills, and attitudes
Personal attributes	→ Knowledge, skills, and attitudes attribute bundles/ Knowledge, skills, and attitudes differentiators

To build their competency model, Ritkin et al. (1999) interviewed managers and asked them about their interactions with their stakeholders. Freeman (1984) defined a stakeholder as any group or individual who can affect or is affected by the achievement of the organization's objectives (46). Mitchell, Agle, and Wood (1997) suggested that stakeholders could be divided into several classes. The extent to which managers gave priority to competing stakeholder demands depended on the number of attributes present—power, legitimacy, and urgency. (Figure 5 shows the various combinations of these attributes.) The attributes are defined in Table 3.

Table 3

Attributes (Mitchell et al., 1997, p. 865-867)

Attribute	Definition
Power	Extent that a party to a relationship has or can gain access to coercive, utilitarian, or normative means, to impose its will in the relationship
Legitimacy	Generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within socially constructed systems of norms, values, beliefs, and definitions
Urgency	Based on two attributes—degree to which managerial delay in attending to the claim or relationship is unacceptable to the stakeholder and the importance of the claim or the relationship to the stakeholder

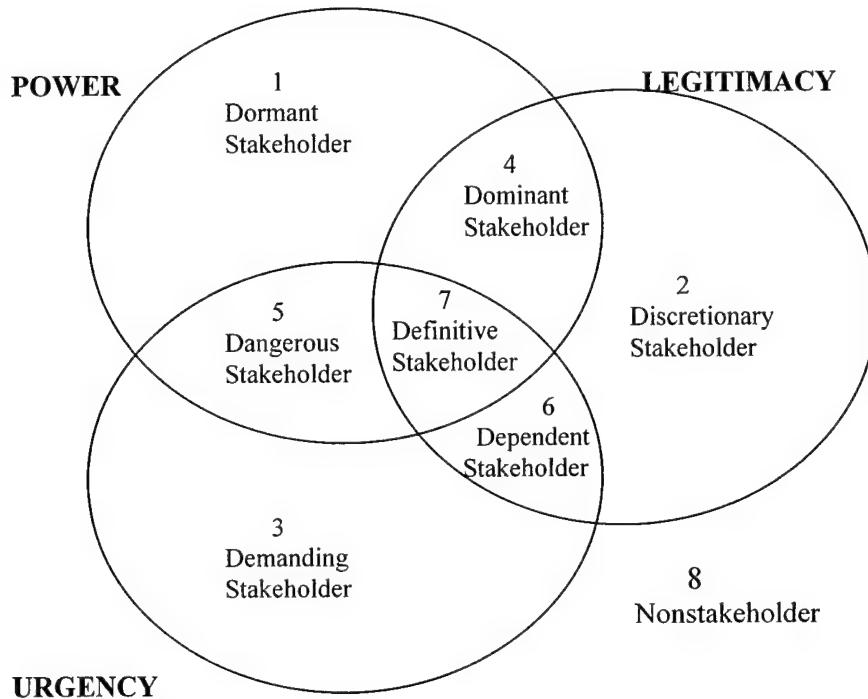


Figure 5. Stakeholder Model. From “Toward a theory of stakeholder identification and salience: Defining the principle of who and what really counts,” *Academy of Management Review*, 22 (p. 874), by Mitchell et al., 1997.

Figure 6, Individual Work Performance Model, summarizes Borman and Motowidlo (1993), Hunter (1983), and McDaniel et al.’s (1988) findings and ties them to Ritkin et al.’s (1999) findings. The model shows that knowledge, skills, personality attributes, and experiences affect how an individual performs work activities, which, in turn, affect how the critical accomplishments of a position (role) are performed.

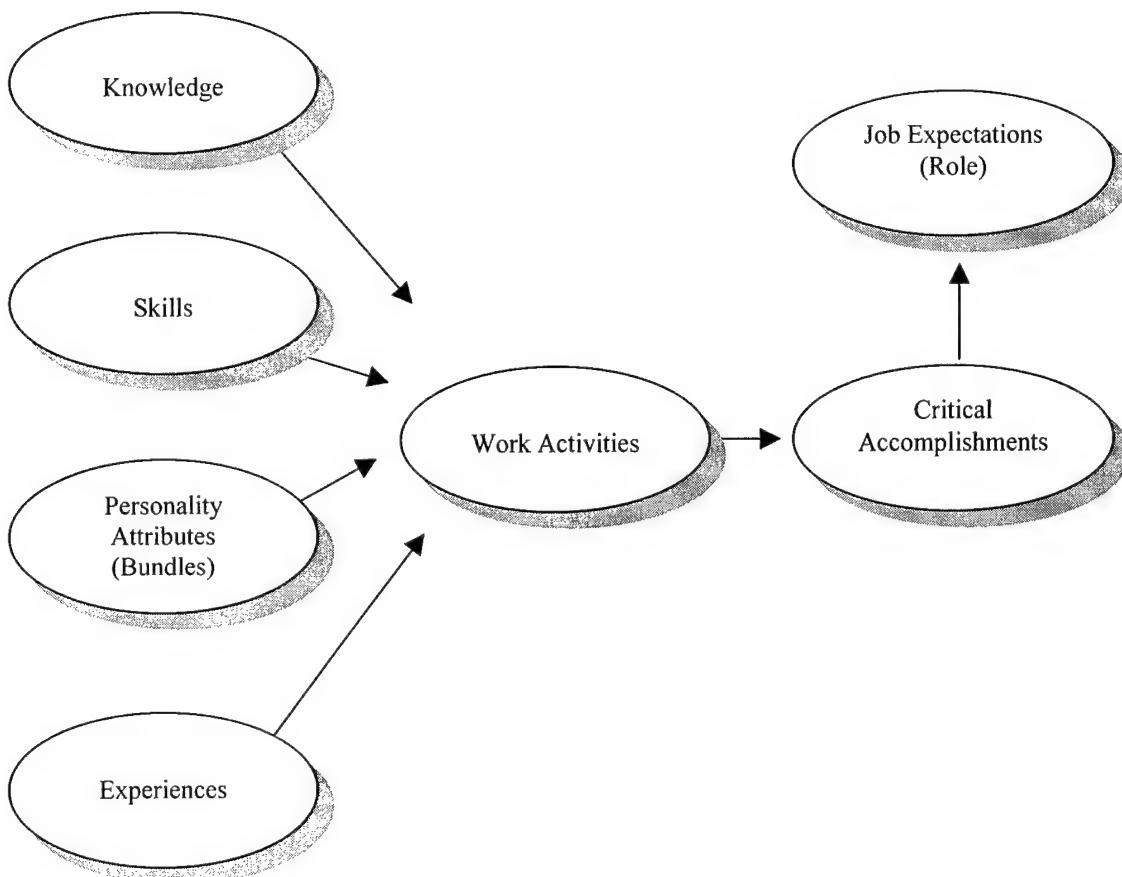


Figure 6. Individual Work Performance Model.

Summary

Career paths are established to guide and groom individuals for specific positions. The Air Force Career Guide uses the pyramid career model to help individuals reach “exceptional careers.” The model identifies the ideal job experiences, training, and education for each stage of an individual’s career. However, it fails to state why the experiences and education are important. The competency model provides answers to that question. Since competencies are an essential part of career paths, a review of the

managerial competencies that are characteristic of successful managers was completed.

The next chapter will describe the job analysis interview process in greater detail and

discuss how the data will be organized and analyzed.

III. Methodology

Chapter Overview

This chapter will describe the job analysis process that will be used to collect the data needed to build the SSM career path. The method used to organize, summarize, and analyze the data will also be presented and described.

Data Collection Process

The data for this project will be collected by conducting a job analysis, which is the process of obtaining information about a job. A job analysis helps define the work, activities, tasks, products, services, or processes performed by or produced by an employee (Clifford, 1994:323). There are several job analysis methods to choose from—direct observation, interviewing, functional job analysis, and position-analysis questionnaire. Table 4 lists the method, what each method involves, and the major advantages and disadvantages related to each method.

In deciding what job analysis method to use, the SSM position itself needs to be kept in mind. Research on managerial activities show that higher-level managers such as SSMs spend 65-75 percent of their time engaged in oral communication—exchanging information and attempting to influence people (Yukl, 1994:24). Based on that information, the direct observation method would not be the best choice since it is limited to manual, repetitive jobs (Mirabile, 1997:74). The functional job analysis and position-analysis questionnaire methods were also not considered the best choice; the functional job analysis requires that the analyst be trained in functional job analysis, and the position-analysis questionnaire method relies on judgment, which can affect the study's

validity. The only method remaining is the interview method. The interview method is the best method to use because it allows the interviewer to probe areas more in-depth and ask follow-up questions. However, one of the drawbacks of conducting interviews is that they are time-consuming.

Table 4

Comparison of Job Analysis Methods (Mirabile, 1997, p. 74)

Job analysis Method	What Method Involves	Major Advantages	Major Disadvantages
Direct observation	Observation, recording	Can obtain reasonably complete picture of manual, repetitive jobs	Limited to manual, repetitive jobs; can't observe mental processes
Interviewing	Recording, interviewing	Can provide in-depth information	Time-consuming
Functional job analysis	Observation, recording, interviewing, judgment	Widely applicable, useful job-classification	Requires analyst trained in FJA system
Position-analysis questionnaire	Judgment (rating)	Widely applicable, data for different jobs is easily compared	Does not provide a written description of jobs or duties

Participants

A total of 23 military and civilian employees participated in the study. Table 5 shows a breakout of the participants. The participants included SSMs, deputy SSMs, SPDs, and SSM stakeholders. Face-to-face and telephone interviews were used to collect the data. Telephone interviews were conducted when face-to-face interviews were not

possible. The majority of the interviews were also tape-recorded, with permission from the individual being interviewed. Of the individuals asked only one chose not to be tape-recorded. This individual's office was in an open area, and he did not want the conversations around him to also be tape-recorded.

Table 5

Participants

	<u>Military</u>	<u>Civilian</u>
SSMs	2	1
SPDs	3	0
Deputy SSMs	1	4
Stakeholders	4	8

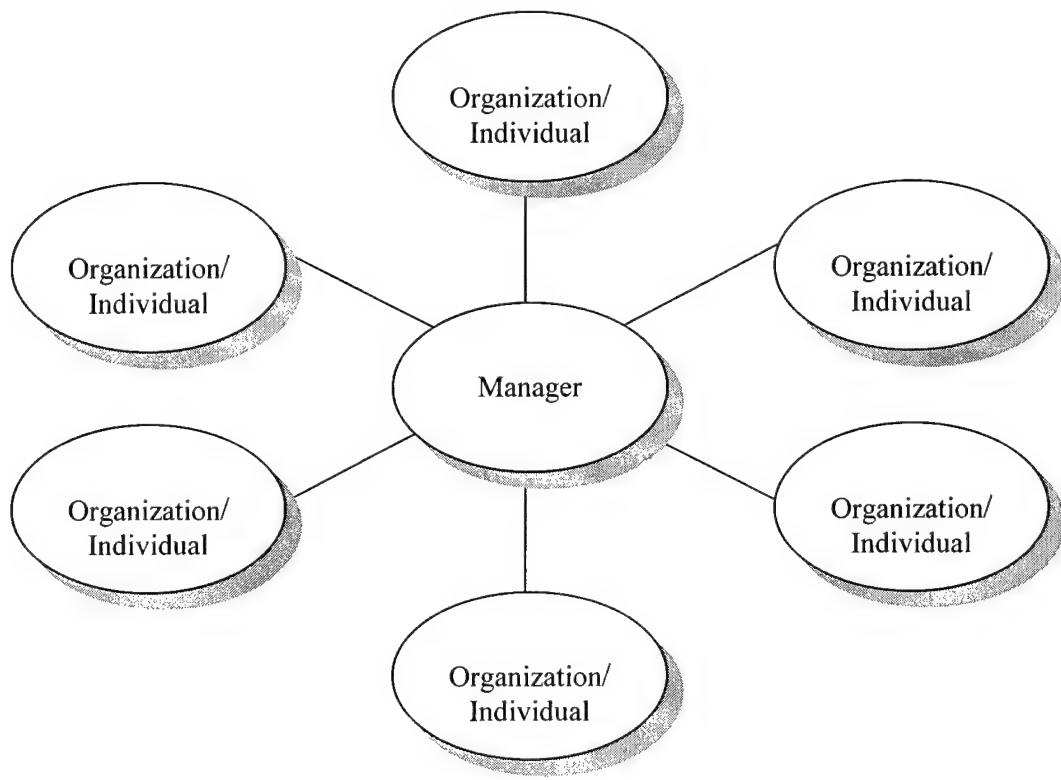
Procedure

SSMs, Deputy SSMs, and SPDs. There were 11 interviews conducted with the SSMs, deputy SSMs, and SPDs. The interviews averaged an hour in length. The interviews began by having the individuals identify their stakeholders. Their responses were written down on small colored Post-it notes which were then placed on a 28x22 poster board as shown in Figure 7. A 9x12 notepad was used during the pilot interview, but it was not large enough to place all the Post-it notes. The use of the notepad also made it difficult for the interviewer and individual being interviewed to keep track of the information already collected; therefore, it was best to use the 28x22 poster board during the data collection process.

Once the stakeholders were identified, the individuals were asked to prioritize the stakeholders from high to low. The order of priority was based on the following question, “If you had a request from each of your stakeholders, how would you prioritize the different requests? Which stakeholders would be considered high, moderate, or low?” The individuals were given the option to rate more than one stakeholder high, moderate, or low.

During the first interview, different colored Post-it notes were used to identify the stakeholders. However, as the interview progressed, the different colors made it difficult to keep track of the data already collected; it was especially difficult to determine whom the stakeholders were. Therefore, during subsequent interviews, the same colored Post-it notes were used to identify all the stakeholders. The same color Post-it notes were also used for all elements within each level of analysis for a stakeholder.

After prioritizing the stakeholders, the individuals were asked to identify the critical accomplishments associated with each stakeholder, starting with the stakeholders prioritized as high. The participants were instructed to consider the most important and most frequent products or services the SSMs provided to the stakeholders. These items were also prioritized from high to low. After placing the appropriate Post-it notes on the poster board identifying the critical accomplishments, the individuals were asked to identify the work activities associated with each critical accomplishment (starting with those critical activities ranked high). The participants identified the tasks required to accomplish each product or service identified. The reason for starting with the highest ranked items was to ensure the most important ones were covered during the allotted interview time. The work activities were also prioritized from high to low.



*Figure 7. Stakeholder Interview Model. From “Developing technical managers—First you need a competency model,” *Research Technology Management*, 42 (p. 54), by Ritkin et al., 1999.*

Once the work activities were identified, the individuals were then asked to identify the knowledge, skills, and personality attributes associated with each work activity. The last step was for the individuals to identify the experiences which helped obtain the knowledge and skills identified. During the interviews, the individuals were also asked to identify the abilities associated with the knowledge identified. However, the researcher realized early on that most participants had difficulty separating ability from knowledge and skills. Ability is the potential of learning something (knowledge) or

doing something (skills). Because of its similarity to knowledge and skills, ability was no longer treated as a separate competency and this step was eliminated. Figure 8 summarizes the interview process.

Depending on the amount of information provided in identifying the stakeholders, critical accomplishments, and work activities, it was sometimes necessary to write the remaining data collected on a notebook versus placing it on the poster board. In order to link the subsequent information collected to that found on the poster board, it was necessary to number the stakeholders, critical accomplishments, work activities, and the remainder of the data. For example, if the individual was identifying the knowledge for stakeholder #5, critical accomplishment #1, and work activity #2, the entry in the notebook would be “5.1.2” and the knowledge identified. After the knowledge for that particular work activity was identified, they would be numbered, and that number would be added to the previous numbers to identify the experiences associated with that knowledge.

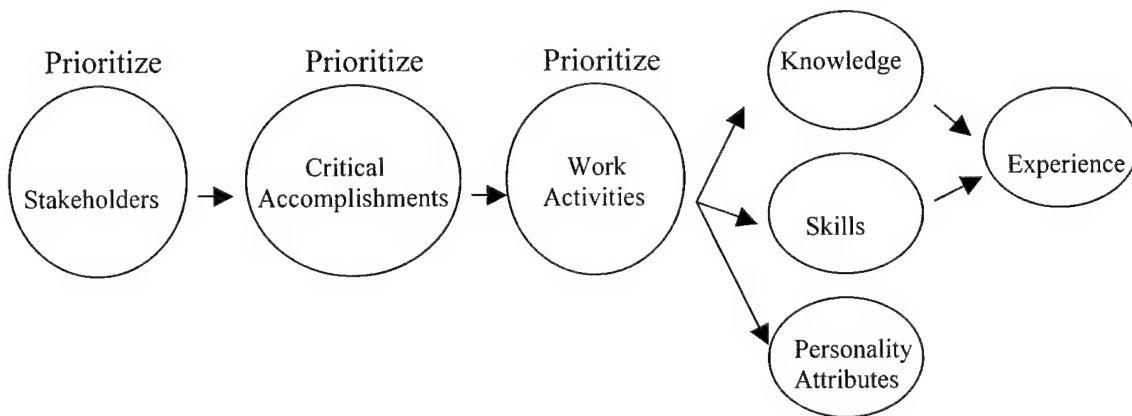


Figure 8. Job Analysis Interview Process.

Other SSM stakeholders. Once all the SSMs, deputy SSMs, and SPDs were interviewed, some of the individuals they identified as stakeholders were also interviewed. A total of 12 stakeholders were interviewed. The interviews averaged 30 minutes in length. The interview process was the same as that used with the first group except that their interview began by having them identify the critical accomplishments first. Since they were identified as SSM stakeholders, there was no need to have them identify the stakeholders first.

Although the majority of the participants followed the interview process depicted in Figure 8, a few individuals chose to talk about the SSM position without following the formal interview process. With these individuals, the researcher tried to ensure they focused their discussion on the areas of interest.

Analyzing the Data

The data collected from the interview process was organized in Microsoft Word and Excel with the same categories used to conduct the interviews—stakeholders, critical accomplishments, work activities, knowledge, skills, personality variables, and experience. Each category was then studied for similarities and differences. Information that pertained to specific programs such as conferences or meetings was not considered in the analysis. The initial analysis led to six critical accomplishments that were common to all SSMs. The data was then summarized and provided to the SSMs and their deputies as shown in the critical accomplishment diagrams and competency model found in Figure 9.

The SSMs and their deputies were asked to review the data and use the dotted blocks found in the critical accomplishment diagrams to separate the experiences that

helped obtain the knowledge identified from those that helped obtain the skills identified. The same experiences could be used for both categories, and not all experiences were required to be used. If there were experiences the individuals felt were important but were not identified in the diagrams, they were free to add them to the models. Once the experiences were linked to the knowledge and/or skills, the individuals then needed to identify the proper stage in the career when individuals should seek the experiences identified. Table 6 shows the stages that were used.

Table 6

Career Stages

Stage	Rank
1	Lt
2	Capt
3	Maj
4	Lt Col

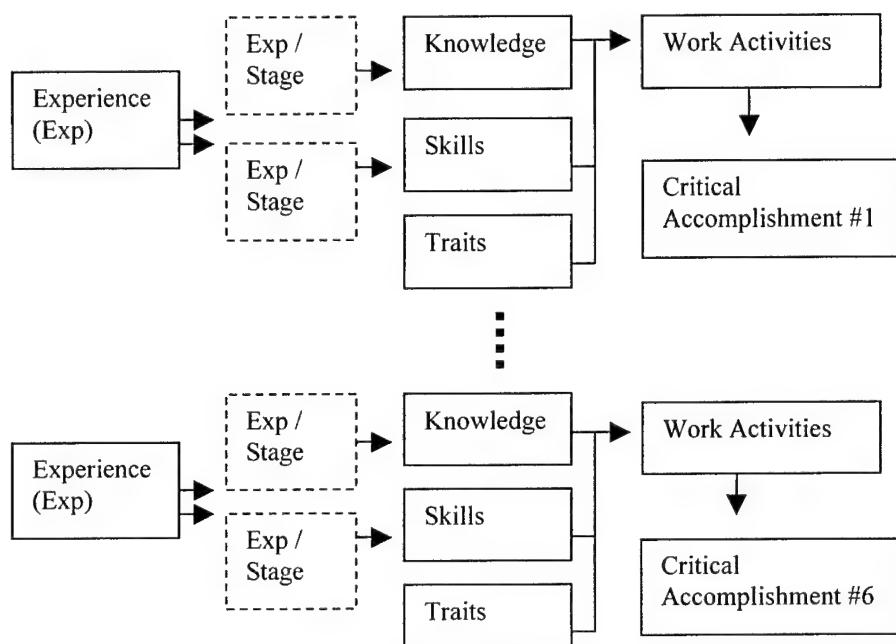
The completed diagrams were then used to build the career pyramid model shown in Figure 9. The diagrams and competency models were revised accordingly based on the changes provided.

Summary

The interview method proved to be the most valid technique available to approach the research problem. It allowed the researcher to collect more in-depth information. The use of face-to-face interviews was ideal because the researcher was able to use the

28x22 poster boards to present the participants their responses. These diagrams allowed the participants to know what was being asked as well as where the interview was going.

The method used to organize, summarize, and analyze the data was also described. The next chapter will present the findings from the data analysis.



Critical Accomplishment (CA) Diagrams

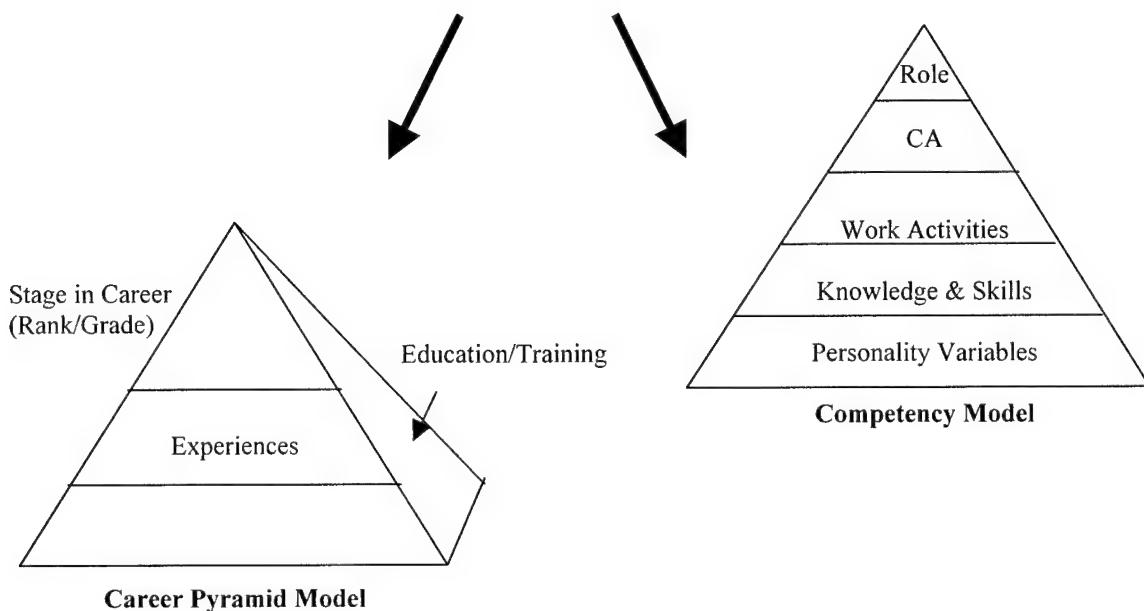


Figure 9. Data Analysis Process.

IV. Findings and Analysis

Chapter Overview

This chapter presents the findings from the data analysis. The answers to the interview questions are compared and integrated to present a complete perspective of the issues covered.

Interview Findings

Overview. As noted in the Methodology, the data collection process involved interviewing 23 individuals—SSMs, deputy SSMs, SPDs, and other stakeholders identified during the initial interviews. The remainder of this section documents the interview questions and paraphrased answers. A complete summary of all responses can be found in Appendix A. Quotes are used when the interviewees' exact words are used. Specific program names and locations will not be disclosed.

Question 1- Who are the SSMs' stakeholders? Most respondents did not have difficulty answering this question. A total of 23 stakeholders were identified. The following responses were common to all SSMs—Detachment 11, Air Staff, SPD, subordinates, end users (war fighters), depots, and contractors. The remainder of the stakeholders targeted specific programs.

Question 2 - What critical accomplishments (products or services) does the SSM provide to each stakeholder identified? For this question and the remainder of the questions, there was sometimes a need to remind the individuals that their responses must focus on the SSM position. Some of the individuals who were not SSMs themselves began to answer the question based on their specific position versus the SSM position.

The responses to this question also varied, but they centered on the six critical accomplishments. An analysis was conducted to determine whether there was any connection between the critical accomplishments identified and the specific stakeholders. It was concluded that no connection existed between them.

Question 3 - What work activities (tasks) are associated with each critical accomplishment identified? The responses to this question varied from top level to detailed. It was concluded that no connection existed between the work activities identified and the specific stakeholders. The critical accomplishments and their corresponding work activities are listed in Table 7.

Question 4 - What are the knowledge and skills associated with each of the work activities identified? What personality attributes should an SSM have?" Because this information is quite extensive when broken out by work activity, only those responses most frequently cited are discussed. Overall, the four most common responses to the knowledge and skills question were interpersonal skills, knowledge of funding rules and limitations, contract management knowledge, and project/program management skills. These items are discussed in greater detail in Appendix B.

There were mixed results for the question on personality attributes. Some individuals believed that career success is not personality driven. They felt the knowledge and skills the SSMs possess is what determines whether they will succeed. However, of the attributes that were identified, the following are some of the ones named: assertive, decisive, dedicated, innovative, intelligent, open-minded, and responsive. SSMs need these attributes to bring the right people together to make sound business decisions and to act quickly when the situation calls for it.

Table 7

Critical Accomplishments and Work Activities

<u>Critical Accomplishment</u>	<u>Work Activities</u>
Ensure systems are operational	Perform reliability and maintainability analysis Provide and review cost/schedule/performance data Analyze, troubleshoot, and repair problems Provide depot level maintenance Perform technical order reviews Evaluate and prioritize support requirements
Upgrade and modify systems/ analyze industrial base	Track fading technology Follow industry to predict future requirements Conduct engineering analysis to find suitable substitutes, modifications, or upgrades Review of engineering change proposals Complete contract actions Install and test equipment Update technical orders
Assist in developing support plans for future systems	Perform trade studies Ensure technical integrity of systems Provide inputs for design review Develop support concepts for future systems
Funds management	Provide budget inputs and projections Project system performance Analyze historical trends Provide impact statements (“what if” analysis) Perform trade studies Provide financial execution data
Contract management	Write statements of work Manage contractor support Manage award fee program
Personnel management	Lead Train and groom Award and recognize Discipline

Question 5 - What job experiences, training, or education will help obtain the knowledge and skills identified? At what point in an individual's career should he or she obtain these experiences? Not all individuals were able to identify specific experiences that would help SSMs obtain the knowledge and skills identified during the interviews. The most commonly cited job experiences included Operational, Education With Industry, Air Logistics Center, and System Program Office. These areas are covered in greater detail in Appendix C.

Summary

This chapter presented the findings from the 23 interviews conducted. The answers were compared and integrated to present a complete perspective of the issues covered. The next chapter presents answers to the research problem using the competency model and career pyramid model.

V. Conclusions and Recommendations

Chapter Overview

This chapter summarizes and interprets the results of the analysis completed in Chapter 4. Specifically, this chapter focuses on three issues. First, the information presented in the Findings and Analysis chapter will be used to build the career path model and competency model for the SSM position. Second, the career path model will be compared to the Acquisition Management and the Supply Operations Officer career path models to determine which one it resembles the most. Finally, limitations of this study are identified and suggestions are made for further research.

Career Guidance

Figure 10, SSM Career Path, and Figure 11, SSM Competency Model, summarize and present the findings from Chapter 4. In order to properly groom individuals to the position of SSM, these two models must be used hand-in-hand. The career path model identifies the ideal job experiences, education, and training necessary to prepare an individual for the position of SSM. The competency model identifies the critical accomplishments, work activities, and knowledge, skills, and personality attributes related to the SSM position. The knowledge and skills identified are what individuals should hope to learn or obtain through the experiences identified in the career path model.

The career path model is divided into stages which identify the best times when the experiences should be acquired. In Stage 1, as Lieutenants, individuals begin to accumulate the technical skills they need to better understand the needs and concerns of

the users. The job experiences that will strengthen their technical knowledge and skills include operational (OPEX), System Program Office (SPO), Air Logistics Center (ALC), and Education With Industry (EWI). During this stage, individuals should also seek Level I APDP certification in Acquisition Logistics, Contract Management, Program Management, and Systems Engineering.

In Stage 2, as Captains, individuals are more technically competent and independent. As they move to Stage 3, as Majors, they make the transition from technicians to managers and begin to take responsibility for their subordinates' work. During Stages 2 and 3, individuals begin to acquire conceptual and interpersonal skills. They also begin working on specific projects or activities. The ideal job experiences during these two stages include OPEX, SPO, ALC, EWI, MAJCOM, and Air Staff (SAF). During this stage, individuals should also seek a MS in Business Management and their Level II APDP certification.

During Stage 4, as Lieutenant Colonels, individuals begin to make decisions that affect the organization as a whole. Their subordinates rely on them to use their power to fight for their programs. During this stage, individuals further polish their conceptual and interpersonal skills and begin taking on some of the roles of SSMs. The ideal job experiences during this stage include SPO, ALC, MAJCOM, and SAF. Level III APDP certification should also be acquired during this stage.

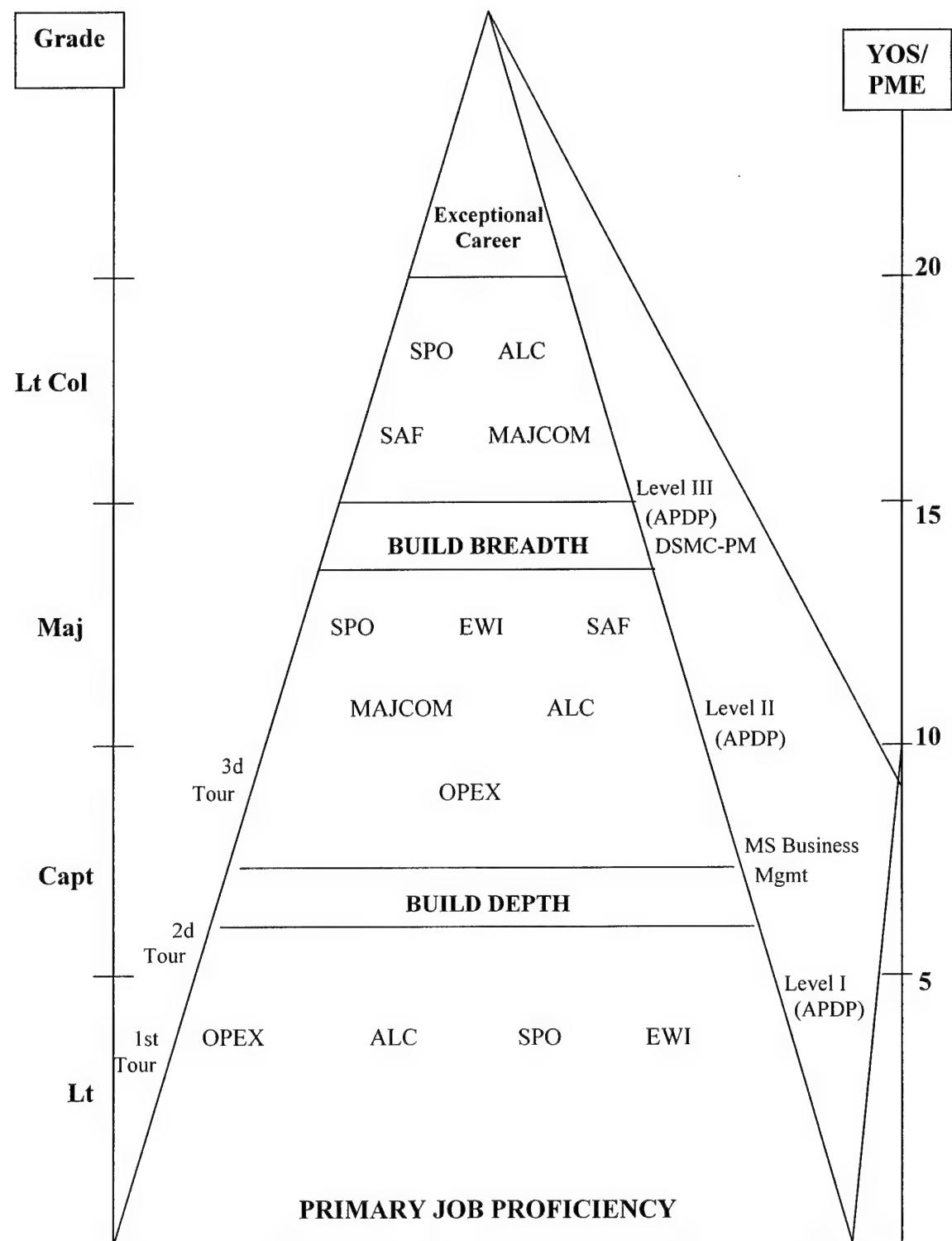


Figure 10. SSM Career Path.

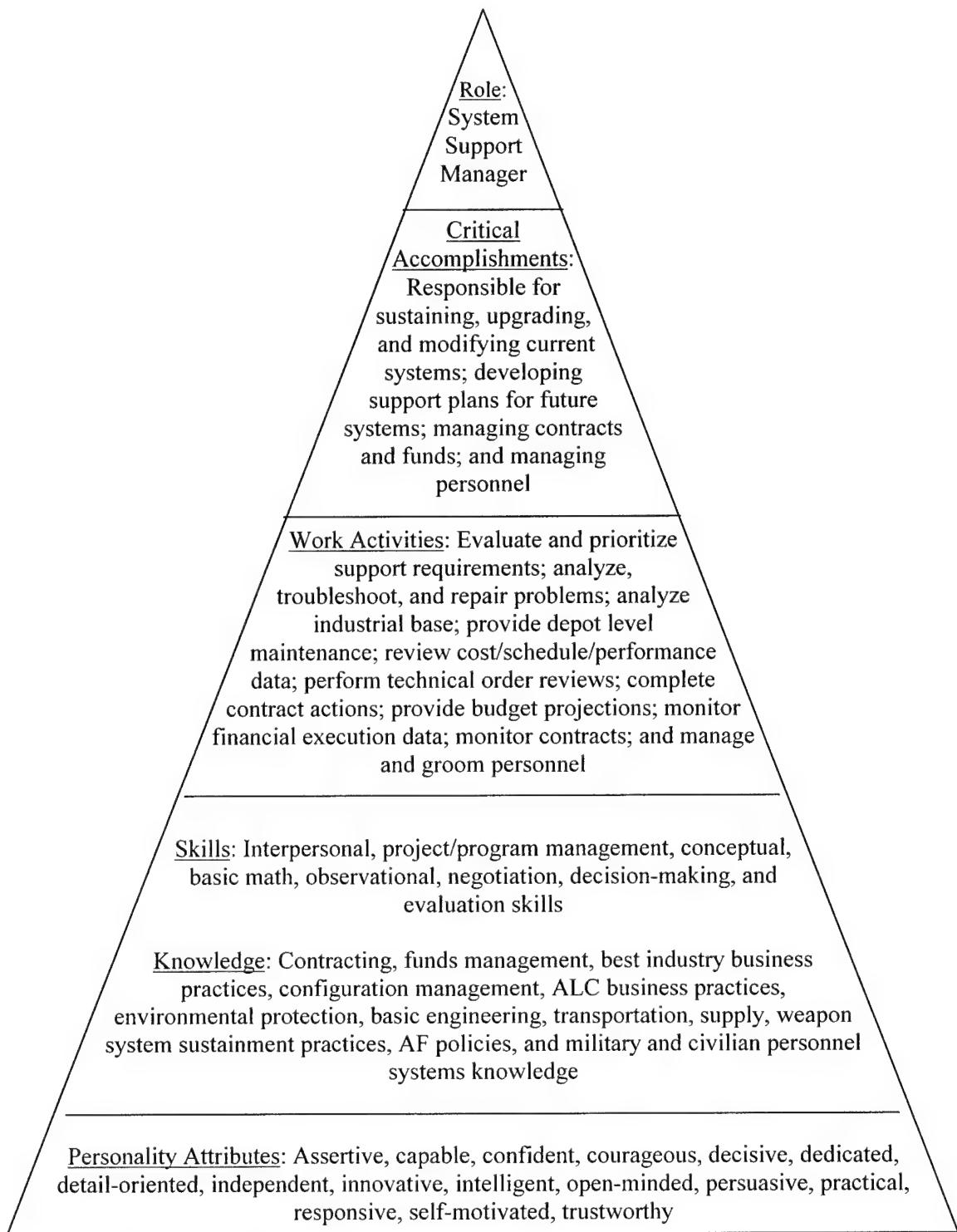


Figure 11. SSM Competency Model.

Comparison of SSM Career Path to Acquisition and Logistics Career Paths

During the interview process it became clear that there is some debate as to whether the SSM career path should follow the acquisition or logistics career paths. Although sustainment activities traditionally fall under the logistics career field, this research found that the SSM Career Path more closely resembles the Acquisition Management Career Path. With the elimination of the Program Management Responsibility Transfer, there is no longer a “seam” between the acquiring and supporting organizations. Support considerations are now an integral part of the system’s design requirements. SSMs are responsible for ensuring the infrastructure elements necessary for the operational support of the system are identified, developed, and acquired. Therefore, in order for SSMs to be effective in carrying out their sustainment duties, they need to understand the entire acquisition life cycle process from design to disposal. The SSM career path resembles the acquisition career path the most because it focuses both on the acquisition and sustainment of systems, whereas the logistics career path focuses primarily on sustainment activities.

Further Research

This research encountered some limitations primarily due to time constraints. The following are recommendations for further research which will help reinforce and validate the SSM Career Path. First, in order to test the results for external validity, the research should be conducted with different samples of SSMs and stakeholders in the Air Force. Second, the research should specifically focus on the civilian SSM positions. Unlike military personnel, civilian employees do not have the flexibility to move from

one job to another without first satisfying certain requirements such as having a certain number of years experience in a job. The complexity of the civilian career advancement system must be considered from the very beginning.

Implications

There are several potential benefits and applications from this research. The methodology used improves the use of career path models. Current career path models identify the experiences that help groom individuals to specific positions; however, they fail to state why the experiences are important. By building a competency model to be used in conjunction with the career path model, individuals understand what knowledge and skills they should obtain from the experiences identified. This improvement translates directly into enhanced performance for individuals seeking career success. The methodology for this research may also be used in research efforts of other military positions. The method, however, may have to be modified for research efforts of civilian positions.

Appendix A – Interview Responses

Interview #1						
CAs	Work Activities	Skills	Knowledge	Abilities	Experience	Other/ Personality
Sustainment	Provide upgrades to system	Basic engineering skills Leadership skills		Ability to understand AFMC Operations the operator		
	Deliver product	Communication skills People skills Interviewing skills	Knowledge of funding limitations		Operational tour	APDP courses (budget)
		Prioritization skills (sense of urgency) Time management skills				

CAs	Work Activities	Interview #2			
		Skills	Knowledge	Abilities	Experience
Budget projections (justifications)	System performance projections	Analytical skills (modeling)	Analytical capabilities (failure rates)		Software modeling
				Operations analysis	
				Generic analysis	
				ALC experience	
Analysis of historical trends				(Same as above)	
				Increased experience in ALC item mgmt	
				Budgeting experience (ALC)	
Analysis of industrial base				Ability to talk technical language	
				Ability to talk to contractors	
					General engineering degree
Cost modeling					
Financial execution data	Request monthly reports from contractors	Basic math skills	Ability to conduct analysis of consistency in reports		

Interview #2 (continued)					
CAs	Work Activities	Skills	Knowledge	Abilities	Experience
(how they are obligating & spending money)			Ability to talk financial and technical lingo		
Issue resolution (provide technical expertise)	(Depend on questions asked)	Technical acumen			
Program planning	Be aware of new possibilities Follow where industry is going Project businesses industry is going to get out of				

Interview #3

CAs	Work Activities	Skills	Knowledge	Abilities	Experience	Other/ Personality
Working with program office on developing support plans for future systems	Develop support concepts	Basic cost/ schedule/ performance skills	General knowledge of AF operations & concepts	Ability to draw on technical & functional experts to work as a team (recognize & build credible plan); specific technical knowledge not req'd	Mix of SPO/ALC, and operational jobs (no specific positions)	Common sense
Determine issue spares list (how many to stock at what level - base or depot)	Leadership skills		Good mgmt knowledge	Pentagon tour as Lt Col or Col; provides understanding of how budget system works	Outgoing - responds well to challenges & crises	
				Lower level experience in maintenance planning or supply planning at SPO or ALC	Leader - ability to pull team together; engages with troops	
				Technical jobs early in career, then higher HQ's position	Welcomes ideas of team	
					Responsive	
Managing support posture for currently fielded systems	Responsible for supply chain mgmt		(Same KSAs, experience, & personality traits as above)			

Interview #3 (continued)

CAs	Work Activities	Skills	Knowledge	Abilities	Experience	Other/ Personality
	(Provide monthly financial status - cost/schedule/ performance); funding (obligation & execution rates); schedule (ahead or behind schedule); performance (meeting users' req's?)					
	Monitor & analyze performance of system to include operational & reliability and maintainability issues					
	Predicting future req's & problems					

Interview #4						
CAs	Work Activities	Skills	Knowledge	Abilities	Experience	Other/ Personality
Technical consultation	Request consultation & money (telephone/ e-mail)	Understand general problem General background in space environment			Assignment that touches research at AF or lab	
Algorithm development	Provide requirement from user & money	General understanding of computer software & technology		Experience with project where contractor built software		
	Agreement - SOW (KSAs to be used for both work activities)			Experience reviewing documents in process development		
Sustainment	Money exchanged for services Agreement - MOA	General awareness of role of research lab in sustainment actions (understand contracts)		Contracting & acquisition courses		
Supply data	Requirement & money			Ability to understand data provided/are they getting their money's worth?	Financial management experience	

Interview #4 (continued)						
CAs	Work Activities	Skills	Knowledge	Abilities	Experience	Other/ Personality
Awareness of technology advances in sciences	Consultation - exchange info & ideas	General understanding of technology goals unit wants to achieve			Working knowledge of systems	
Develop/sustain software	Need requirement			Ability to hire someone who really understands what's going on	Know requirements (Program Manager experience)	
	Well trained personnel				Logistics management experience	
	Identify broken equipment	Computers & tools (software)	Know methodology involved to get equipment repaired			
Repair field equipment	Determine level of problem (Level I or II)		Know what contractor can do to repair equipment			
	Acquire parts		Knowledge of supply system			
	Repair field equipment					
Conduct studies	Requirement - SOW & money		Evaluate whether contractors are qualified through cost/schedule/ performance		Program mgrs/ acquisition experience	

Interview #4 (continued)					
CAs	Work Activities	Skills	Knowledge	Abilities	Experience
Deploy upgrades SOW	Cost/schedule/ performance (cognizant of when they'll do what)				Program mgrs/ acquisition experience
	Well trained personnel Funds (money)				General background in space physics Experience with contract support
Sustainment & technology	Technical consultation	Understanding contract support			Program management experience
	Hardware sustainment				Financial management & management experience
	Rapid prototyping/ technology insertion	Understand concept			
	Program mgmt & support				
Finance/personnel actions	Communication skills				
	People skills				
	Sustain software maintenance	Understand principles behind software maintenance			
Single face to customer	Being authoritative representative of SPO decisions & actions	Communication skills			Ability to educate SPD at his level

Interview #4 (continued)					
CAs	Work Activities	Skills	Knowledge	Abilities	Experience
					Other/ Personality
Finance approval (authority to spend); color of money					
SPD provides approval of ECPs through configuration control board (CCB)					
Technology advances	Call/conference/ word of mouth		Ability to determine whether it is relevant		
Software process	Conferences		Ability to determine whether it is relevant		

Interview #5					
CA	Work Activities	Skills	Knowledge	Abilities	Experience
Do PPBS (Planning, Programming, and Budgeting System) in concert with SAF; strong interface with PEM	Overall budgeting - budget analyst coordinates most of this (have single database that they capture all in)	Familiarity with PPBS process including Air Staff, Familiarity with FM functions	Strong knowledge of earned value mgmt (program mgmt/finance/contracting methods for analyzing cost & schedule of program)	Couple of yrs budgeting experience	Defense Systems Mgmt College (DSMC) program mgmt courses DAU (Defense Acquisition University) classes (ACT 201, etc) Program mgmt training
	Brochures process - breaks out funding procedures		Knowledge of brochures process		
	Detailed program requirements reviews w/ Stakeholder	Communication skills	Overall knowledge of program & supportability for program	Ability to interact directly with user	Program mgmt & logistics background Experience in managing acquisition and logistics programs
	Detailed requirements reviews				

Interview #5 (continued)					
CA	Work Activities	Skills	Knowledge	Abilities	Experience
	SEMR (Senior Executive Mgmt Review - budget & req'ts based documents)	Knowledge of individual systems	Knowledge of maintenance status & availability/ sustainment req'ts of system		Experience in program mgmt & operational systems
	Pdocs (procurement documents) & Rdocs (acquisition side)	coordinating with MAJCOM/depot/ AFMC			Experience working at Air Staff (PEM exp preferable)
Provide impact statements	Impact analysis		Knowledge of program coordination process Knowledge of Air Staff coordination process		
Coordinate PMDs (Program Mgmt Directives) w/ SAF-key document in acc process	Coordinate, discuss, argue; provide inputs to a plan like a PMD change	(similar to impact analysis)	Knowledge of Air Staff & acquisition process		PEM & program mgmt experience

Interview #5 (continued)						
CA	Work Activities	Skills	Knowledge	Abilities	Experience	Other/ Personality
Provide trade studies	Engineering analysis		Basic knowledge of program & budget Basic engineering knowledge		Engineering background	
	Budget analysis					
Training and grooming employees (job advancement & current job)					Experience as team leader - program mgr & supervisor	
	Career counseling	Communication skills	Knowledge of military & civilian career paths Basic knowledge of opportunities in those career paths			
Promotions/ advancement	Training plans				Experience as supervisor & program mgr	
	Providing opportunities	Communication skills	Knowledge of local job opportunities Knowledge of career paths			
				Knowledge of program so you know when you can afford an opportunity Knowledge of individuals Knowledge of work constraints		
	Providing support					

Interview #5 (continued)					
CA	Work Activities	Skills	Knowledge	Abilities	Experience
Infrastructure support	Providing support		Knowledge of personnel, program, and local host		
Providing subordinates w/ resources			Knowledge of funding profiles Overall awareness of needs across divisions		
			Understanding of funding	Experience as program/ project mgr, proj engineer, equipment specialist	Supervisory training
Discipline	Counseling	Communication skills			
		UCMJ authority interaction (Det 11/CC)	Knowledge & understanding of commander's view Understanding of JAG's role		
	Civilian personnel interaction		Knowledge of civilian personnel rules	Ability to work with CPO	Civilian supervisory training
Repairing items (SSM oversees process)	Analyze/ troubleshoot problems			Experience as operator of a system	

Interview #5 (continued)						
CA	Work Activities	Skills	Knowledge	Abilities	Experience	Other/ Personality
	Deploy contractors or military; items can also be shipped back		Understanding difference between repair cycles & system availability		Experience as program mgr for operational system	
	Repair item				Visiting maintenance organization	
End users do equip reporting (status/maint)	Users provide info via CAMs; data is centrally gathered		Understanding of maintenance reporting process		Experience as user	
	Analyze (follow-up) (metrics-based); relates back to availability number (timeline to fill back orders, etc.)		Knowledge of systems & req'ts	Ability to understand metrics	Engineering background	
	Complete work order to initiate repair					
	Provide new or upgraded equip & training	Put together modification kits	Communication skills Coordination skills	Program mgmt/logistics experience Engineering experience desired	Acq/log training (DAU)	
	Complete site surveys		Written communication skills Coordination skills	Understand program	Engineering background	
	Deploy personnel	Coordination skills		Ability to travel		

Interview #5 (continued)						
CA	Work Activities	Skills	Knowledge	Abilities	Experience	Other/ Personality
	Install & test equip; train personnel (engineering function)		Knowledge of system		Engineering background Program mgmt experience	
Provide stakeholder req'ts of what it'll take to sustain current systems - based on their req's	Help draft 1067's (modification req's document) for user signature		Knowledge of modification requirements process		Experience as program mgr on modification program	
	Coordinate on req's	Communication skills	Overall program knowledge			
	Provide cost estimates (oriented toward FM community)	Coordination skills	Knowledge of program		Program mgmt & financial mgmt experience	
Stakeholder provides money	Provide funding document		Knowledge of program			
	Provide justification via program req's reviews & supporting documentation (SEMIRs, Pdocs, budget brochures)					
Stakeholder provides overall plans	Participate in program reviews	Briefing/ communication/ coordination skills	Overall program knowledge	Ability to compromise	Program mgmt & user experience	

Interview #5 (continued)						
CA	Work Activities	Skills	Knowledge	Abilities	Experience	Other/ Personality
	Coordinate on implementation plans	Coordination/ communication skills	Knowledge of program			
			Strong knowledge of available resources & personnel capabilities			
Perform program reviews w/ stakeholder (Provide cost/ schedule/ performance data; run programs for them)	Provide cost/schedule/ performance data	(similar to APBs)			Program mgr/engineering background	
	Trade studies (technical and cost; include alternatives)	Communication skills				
		Briefing skills				
	Briefings	Communication skills			Program mgr experience	
APBs (Acquisition Program Baseline)	Coordinate on user thresholds & objectives	Communication skills	Knowledge of program		User/program mgr/ PEM experience	
	Provide user feedback; report on cost/schedule/ performance and risk					

Interview #5 (continued)						
CA	Work Activities	Skills	Knowledge	Abilities	Experience	Other/ Personality
	Plans need to be executable with resources in order to get SPO commitment behind it					
SPD provides planning & guidance (downward directed)	Implement guidance (Director's intent on where programs need to go)	Planning skills	Knowledge of program & resources Knowledge of financial execution rules		Program mgr experience	
Part of SPO Configuration Control process - baselines of their programs on cost/ schedule/ * performance		Recommend disposition of CCB actions; SPO director is the authority	Overall program knowledge		Program mgr or engineering experience	
(Configuration control is SPD's responsibility)			Understanding of configuration/ control process			
		Submit engineering change proposals (ECPs)	Broad knowledge of change control process		Program mgr or engineering experience	
	Perform technical review of ECPs		Broad knowledge of system		Program mgr or engineering experience	

Interview #5 (continued)						
CA	Work Activities	Skills	Knowledge	Abilities	Experience	Other/ Personality
	SSM provides stakeholder with requirements-- unfunded	Planning skills Communication skills	Overall program knowledge		Program mgr experience	
	Provide recommendation on types of funding to ensure funds are spent appropriately; do justifications		Knowledge of funding rules/constraints			
			Knowledge of program			
	Provide Commander's Operational Readiness Report (goes to 4-star CC)	Consolidate analyses of metrics from various systems Communication skills	Knowledge of support requirements Knowledge of program			
	AFMC provides funding	Complete budgeting documents (similar to PPBS)		Knowledge of funding process		
		Provide feedback on obligation & expenditure rates				
		Provide impact statements (program feedback)		Knowledge of AFMC rules/guidance		

Interview #5 (continued)						
CA	Work Activities	Skills	Knowledge	Abilities	Experience	Other/ Personality
Hold stock, ship, repair, & contract	Review/coordinate hold/ship/repair/ contract actions		Knowledge of spreadsheets Overall program knowledge Understand depot process		Depot experience	
Provide funds to stakeholder	Review propriety of funds (ensure funds are expended in accordance w/ Congressional intent)			Broad knowledge of funding rules		
Contractor delivers products of some sort (analysis, hardware or software product)			Basic program & resources knowledge		Ability to review cost/schedule/ performance of product	

Interview #5 (continued)					
CA	Work Activities	Skills	Knowledge	Abilities	Experience
Interaction to get contract done (agreement); binding relationship	Complete statement of work	Contracting communication skills	<p>Knowledge of government requirements</p> <p>Knowledge of program</p> <p>Knowledge of contracting process</p> <p>Review proposal (both technical & cost)</p>	<p>Program mgr/contracting officer experience</p> <p>Engineering and financial management experience</p> <p>Understanding of work measurement (tells you how much something should cost)</p> <p>Understanding of program requirements</p>	<p>DAU courses - contract mgmt & systems engineering courses</p>

Interview #6								
CA	Work Activities	Skills	Knowledge	Abilities	Experience	Other/ Personality		
Network sustainment	Modernization (use clues from RMA and do something to avoid repairs (Keep track of fading technology)	Systems knowledge (includes logistics of systems knowledge)	Engineering knowledge	Integration knowledge	Working as program mgr - project lead Experience at ALC - product ctr (allows you to receive more hands-on knowledge) Working as program mgr - project lead Experience at ALC - product ctr	Working as program mgr - project lead Experience as AFMC liaison - acquire knowledge in weapon system Experience as project mgr/program mgr w/in similar weapon system product ctr Tour as maintenance officer for weapon system	Knowledge of industry standards (what's out there; what's being developed?)	EWI (Education with industry)

Interview #6 (continued)					
CA	Work Activities	Skills	Knowledge	Abilities	Experience
				Seminars & workshops Professional reading Cross flow between SSMs & program offices Assignment in more than 1 weapon system	Short courses & seminars Read AFIs APDP courses
		Environmental protection knowledge			
	Planning skills		Systems knowledge (includes logistics of systems knowledge)	(same as before)	PME (ACSC/SOS)
	Depot level repairs on site	People skills (to understand the workers)			BA/MS in Business Mgmt (courses also)
	Depot level repairs off site	Planning skills		Understanding of support base - what is contractor capable of doing	Project mgr/program mgr experience

Interview #6 (continued)						
CA	Work Activities	Skills	Knowledge	Abilities	Experience	Other/ Personality
	People skills (to understand the workers)				(same as before)	
	Understand transportation & supply				Experience in Wg maint/logistics career field On-the-job training	
Emergency fixes	Sense of urgency	Systems knowledge (includes logistics of systems knowledge)			(same as before)	
	Understanding of mission			Working with user - attend user sponsored conferences	Orientation courses for systems	
				Ability to perform failure mode analysis - troubleshooting skills (emergency fixes are likely evasive, don't know what's causing it & have to find it)	Technical courses (college/AFIT) (Mishap investigation course)	
					(Systems engineering course held in Monterey, CA)	

Interview #6 (continued)						
CA	Work Activities	Skills	Knowledge	Abilities	Experience	Other/ Personality
Reliability/ Maintainability Analysis (RMA)		Statistics knowledge Quality knowledge	Systems knowledge (includes logistics of systems knowledge)			College level course
Advice on program direction	10-yr plan	Planning skills (ability to plan)	Systems knowledge (includes logistics of systems knowledge)			
			Knowledge of industry standards (what's out there; what's being developed?)			
				Ability to assess resources (plan has to be executable)		MA/BS in Business Mgmt PME
						Supervisory courses (Civilian Personnel Office)
						Mentors

Interview #6 (continued)						
CA	Work Activities	Skills	Knowledge	Abilities	Experience	Other/ Personality
	Evaluation of requirements		Understand the mission			
		Engineering knowledge		(same as before)		
				Systems engineering experience/failure mode analysis	(same as before - failure mode analysis)	
			Knowledge of industry standards (what's out there; what's being developed?)			
				(same as before)		
	Communication skills (written/verbal)				PME / MBA / watching others	
	Modernization (same as 1.1.1)					
	SERP (Sustainment Engineering Req'ts Plan) - 5yr budget forecast for sustainment dollars (includes justification)		Understand funding rules (limitations/color of money)		DMSC courses (short ACQ 101, 200, 300...) ARDP courses Study AFIs	
	Provide budget inputs					Know budget analyst

Interview #6 (continued)					
CA	Work Activities	Skills	Knowledge	Abilities	Experience
		Communication skills	Systems knowledge (includes logistics of systems knowledge)		(same as before)
		Impact statements ("what if" analysis)	Transportation & supply knowledge		(same as before)
		Spending status - states how much money is obligated & what is on contract	Systems knowledge (includes logistics of systems knowledge)		(same as before)
		Provide status on sustainment issues	Communication skills	Knowledge of contracts Knowledge of budget rules	(same as before)
		Quarterly PMR (Program Mgmt Review)		Knowledge of contract status	(same as before)

Interview #6 (continued)					
CA	Work Activities	Skills	Knowledge	Abilities	Experience
Projects assessments			Systems knowledge (includes logistics of systems knowledge)		
			Engineering knowledge	(same as before)	
			Contracting knowledge	(same as before)	
				Ability to understand resources	(same as before)
			Communication skills		(same as before)
			Systems knowledge (includes logistics of systems knowledge)		
			Engineering knowledge	(same as before)	
			Environmental protection knowledge		
			Systems integration knowledge	(same as before)	
			Communication skills		(same as before)

Interview #6 (continued)						
CA	Work Activities	Skills	Knowledge	Abilities	Experience	Other/ Personality
	Establish PSP (Project Spt Plan)	Systems engineering knowledge	Systems knowledge (includes logistics of systems knowledge)	(same as before)	(same as before)	
	Communication skills			(same as before)	(same as before)	
	ECPs (Engineering change proposals) Give taskings (KSAs are same for all WAs)	Environmental knowledge	Ability to understand environmental laws - EPA	(same as before)	(same as before)	
		Systems knowledge (includes logistics of systems knowledge)		(same as before)	(same as before)	
		Engineering knowledge		(same as before)	(same as before)	
			Ability to understand resources	(same as before)	(same as before)	
		Contracting knowledge		(same as before)	(same as before)	
		Understanding of transportation & supply		(same as before)	(same as before)	
	Task orders					
	Statements of work					
	Provide feedback on how stakeholder is doing taskings	People management skills	Award fee program	(same as before)	(same as before)	

Interview #7						
CA	Work Activities	Skills	Knowledge	Abilities	Experience	Other/ Personality
Maintenance support	Status reporting & tracking (Site operational status report & tracking)	Communication skills (verbal) Understanding of operational status metrics	Knowledge of statistical mathematics	Ability to communicate orally	None	
		Knowledge of ORD (operational requirements document)		Maintenance experience (Space Systems maintenance)		Education-based
		Knowledge of system design & operations		Space systems maintenance experience		
	Mgmt of contractor support	Contract administration		O&M contracting experience (any base)	APDP courses (Level II program mgmt is sufficient)	
		Prioritization skills (in terms of managing contract support)		Space Ops operational experience - helping to prioritize maintenance tasks		
		Prioritization skills - making tradeoffs	Knowledge of O&M funding processes	Ability to compromise	Managing level of effort support contracts (no definable end product-(service))	
	Funding & requirements mgmt			Ability to manage level of effort support contract (no definable end product-(service))		
			Knowledge of PPBS			

Interview #7 (continued)						
CA	Work Activities	Skills	Knowledge	Abilities	Experience	Other/ Personality
Personnel supervision	Performance feedback	Observation skills	Knowledge of operational support requirements			
			Knowledge of expected performance level			
		People skills		Leadership ability	Experience in dealing with difficult people (attitudes)	
				Ability to deal with wide range of personalities		
		Interpersonal communication		Ability to communicate verbally and in writing		
	Organizing (setting up effective organization)	Organizational skills	Knowledge of organizational structures to evolving responsibilities		Experience in various organizational structures	
			Theories & chains of command			
		Matching abilities to tasks - skill?	Knowledge of organization's mission		On-the-job training	
			Knowledge of personnel capabilities		None	
		Balancing workload - skill?		Ability to observe in time fashion and reallocate		

Interview #7 (continued)						
CA	Work Activities	Skills	Knowledge	Abilities	Experience	Other/ Personality
Maintenance support (diff stakeholder)	Requirements vs resource mgmt (Provide as much as you can afford)	Written communication skills (conveying a need; articulating a need)		Ability to tie requirements to higher level objectives		
		Finding a compromise		Decision-making ability	Experience in managing funding constraint programs	
	Maintenance insight into future program plans	Communication skills		Ability to convey competence to other stakeholders	Experience in managing funding constraint programs	
		Identifying compatibility/incompatibility of program concepts & maintenance realities		Ability to extrapolate from concepts & plans	Space systems maintenance experience	
	Contract mgmt	Communication skills (oral) - convey to the contract officers what needs to be done so it will be added to contract		Ability to communicate verbally		
	Prioritization skills	Knowledge of contractor's motivations	Decision-making ability	Experience with funding constraint programs		

Interview #7 (continued)					
CA	Work Activities	Skills	Knowledge	Abilities	Experience
	Contract administration	Knowledge of PPBS process - figure out lead times on when to start contract actions so contractor stays funded			APDP courses (Level III training)
		Working knowledge of federal acquisition regulation (FAR)			
SSM provides program management	Performance feedback (Regular recurring feedback on how their program is satisfying or not satisfying the req'ts)	Critical thinking skills	Knowledge of contract structure	Ability to assess performance relative to contract requirements	
			Knowledge of technical & performance requirements	Ability to compare contractor performance to higher level objectives	
	Communication skills (verbal)		Knowledge of contract		Experience as project lead or primary govt interface w/ contractors on any other project
	Award fee administration	Observation skills	Knowledge of contract	Ability to tap into enough information available to observe legitimate performance	Experience w/ contracts for comparable type work

Interview #7 (continued)					
CA	Work Activities	Skills	Knowledge	Abilities	Experience
		Evaluation skills		Ability to critically compare expectations w/ observed performance	Experience administering award fee contracts
Provide information - program status & plans	Frequent communication (verbal) - briefings, phone calls, etc.	Communication skills	Knowledge of ORD requirements	Ability to communicate verbally	Experience working in higher HQ (any MAJCOM)
	Frequent communication (verbal) - briefings, phone calls, etc.	Communication skills	Knowledge of operational status	Ability to communicate verbally	Experience working at an ALC
Provide program status & feedback			Knowledge of ALC's business practices		

Interview #8						
Critical Activities	Work Activities	Skills	Knowledge	Abilities	Experience	Other/ Personality
Provide program mgmt & oversight for funds expended	Program mgmt review (review of project, funds given, how much money is being contracted, when project is to be completed, & execution rates)	Ability to work w/ large number of people		Ability to determine when contractor is performing technical aspects of contract	Program mgr/ acquisition background	Interpersonal skills
Contract administration		Knowledge of contract		Ability to make compromises & reach consensus	Experience working w/ large complex programs (any program)	
Funds mgmt		Knowledge of PBS process		Knowledge of funding limitations (color of money)	APDP courses (Level III desirable)	
Provide guidance to their people				Ability to manage large number of tasks		

Interview #8 (continued)					
Critical Activities	Work Activities	Skills	Knowledge	Abilities	Experience
				Ability to determine where you can pull money if needed	
DR gives SSM prioritized list of reqs from Wgs, SSM takes them & figures out how to execute out how to execute (which ones can they handle)	Statement of work for contractor - get rough project estimate from contractor; look at task loading against contractor resources & other projects; can they perform the work & does it meet need dates?				
Provide analysis of maintenance actions & reliability/ maintainability of assets for future possible upgrades (Not currently being done; don't have contractors that can provide analysis); new contractor will be req'd to provide it)	Provide projections of when configuration items are to be replaced or become obsolete		Ability to understand & provide oversight to process		
	Provide recommendations for funding advocacy (funds needed in future yrs to be included in POM)		Understanding of equip (no great detail)	General knowledge of state of industry (commercial products; what's going & what's not)	No specific experience; depends on item

Interview #8 (continued)					
Critical Activities	Work Activities	Skills	Knowledge	Abilities	Experience
	Taking maintenance data for configuration items & comparing against manufacturer's stated reliability & past performance reliability & try to measure life expectancy				
	(Is it performing the way it's supposed to; is it staying w/in life cycle of component); project each yr what needs to be replaced (project funding)				

Interview #9					
CA	Work Activities	Skills	Knowledge	Abilities	Experience
AFSC provides funding	Provide funding requests (supporting documentation for POM inputs) - helps AFSC receive funding Ensure systems are operational	Understand POM/PPBS process	Knowledge of different funding profiles (proper use of dollars)		Experience in Logistics field from ALC perspective (prior to entering job - at least 10 yrs experience)
Upgrade & modify systems in accordance with reqts			Knowledge of depot level maintenance processes & procedures	Good command of how depot functions Understanding of maintenance activities (what Level I & II activities are)	Experience in Logistics field from ALC perspective (prior to entering job - at least 10 yrs experience)
Maintain systems (falls in 2 categories)	Contract action for maintenance		Familiar with contracts		Contracting background (know different types of contracts)

Interview #9 (continued)						
CA	Work Activities	Skills	Knowledge	Abilities	Experience	Other/ Personality
	Blue suit tasking for maintenance		Knowledge of what funds are appropriate to use for those activities			
AFSC provides overall guidance	Ask for clarification if needed to ensure guidance is clear					
Receive feedback from users on system status (informal)	(same as contract action) - to effective changes in the system	Communication skills (primarily verbal) Prioritization skills (focus on priorities that will get the job done)				
Provide system changes to help users do better job	Participate in PIWG (Product Improvement Working Group)	Communication skills - briefings, presentations	Ability to see "big picture"		Ability to adequately evaluate work (be fair, equitable, & consistent)	
Det 11/CC ensures continuity among all divisions	Provide inputs to quarterly awards Provide inputs to civilian appraisal system		Good command of personnel system			

Interview #9 (continued)					
CA	Work Activities	Skills	Knowledge	Abilities	Experience
CC provides assistance w/ personnel issues	Submit AF 52's personnel action requests Submit training requests		Good knowledge of personnel system - what specialties & numbers needed to fill positions properly		
	Review costs/schedule/ performance data	For costing - track expenditure & obligation rates	Thoroughly understand how cost/schedule/ performance plays an important role in their systems; how they interact with each other		Logistics 101
(KAEs apply to all)	Provide schedules for each project & upgrades		Thoroughly understand tools available to them in making sure all 3 items are looked at properly & that they can make solid decisions based on info they have		
	For performance - review performance data (CAMS/ REMIS)				
	Execute program				

Interview #9 (continued)						
CA	Work Activities	Skills	Knowledge	Abilities	Experience	Other/ Personality
	Manage program through execution of contracts, Execute program for maintenance actions, mods, trs, supplies & spares - trng for operational & maint personnel	Execute program for SPD - ultimately responsible for execution of program	Thoroughly understand how cost/schedule/ performance plays an important role in their systems; how they interact with each other	Thoroughly understand tools available to them in making sure all 3 items are looked at properly & that they can make solid decisions based on info they have	Provide program management reviews (provide cost/schedule/ performance data) - allows SPD to make top level decisions for program direction	Thoroughly understand how cost/schedule/ performance plays an important role in their systems; how they interact with each other
	SPD solves problems between divisions					

Interview #9 (continued)						
CA	Work Activities	Skills	Knowledge	Abilities	Experience	Other/ Personality
			Thoroughly understand tools available to them in making sure all 3 items are looked at properly & that they can make solid decisions based on info they have			
SPD provides top level and decision making authority and direction	Perform weekly feedback/mtg/s/ discussions/ telecons with dep SPD	Communication skills				
Provide guidance on proper use of funds	Seek guidance on funds limitations		Good command of funding (proper use of funds)			
Manage funds (keep track of funds and status of funds)	Provide information on how funds will be used Provide spend plans which specify how & when they want to spend funds		Good command of funding (proper use of funds)			
	Perform internal program mgmt reviews so they know how funds will be spent & executed throughout the yr					

Interview #9 (continued)					
CA	Work Activities	Skills	Knowledge	Abilities	Experience
Write contracts - SOWs (KAEs apply to all)	<p>Provide info - justifications & approval to go into contract</p> <p>Provide specifications</p> <p>Provide inputs for SOW so they can write contracts for them</p> <p>Provide people to provide source selections</p>	Contract mgmt skills	Good knowledge on how contracts are written		
Technical order mgmt	Perform technical reviews of TOs & provide Hill changes so they can update TOs accordingly		Fundamental understanding of TOs/how they function, what they're used for, how they're maintained & managed)	Understand regulations & instructions	
Provide depot level maintenance on stock listed items	Inform them of failing parts & which ones are being shipped back	Ship parts for repair	Knowledge of depot level systems & how they function		

Interview #10					
CA	Work Activities	Skills	Knowledge	Abilities	Experience
Maintenance/ sustainment	Implement product improvement		Knowledge of regulations covering product improvement planning		On-the-job training
	Perform reliability/maintainability analysis	Basic math skills			Any logistics courses (101 + up)
	Disposal of equipment (not done often)				On-the-job training (no specific position)
	Changing TOs	Written communication skills			Basic logistics courses (101 + up)
	Modifying equipment	Program mgmt skills	Knowledge of PPBS		Program mgmt courses (provide skills & knowledge identified)
	Changing maintenance actions	Project skills	Knowledge of funds mgmt		

Interview #10 (continued)						
CA	Work Activities	Skills	Knowledge	Abilities	Experience	Other/ Personality
Product Support Plan - reports how to sustain new acquisition program	Solicit strategy inputs from all stakeholders (how is new system going to be integrated with current system structure); ensures integrity of system	Verbal/written communication skills		Ability to work with stakeholders to know what they want		
SEMR (Senior Executive Management Review) - reports how system is working; it's their assessment	Solicit facts on current system structure	Written/verbal communication skills		Ability to defend report		
Maintenance/ sustainment reports	Ensure integrity of system - how well will systems work together		Knowledge of system		Experience w/ working on system	On-the-job training
Cost/benefit analysis						
Hardware/software modifications (tasking from AFSC to SPD to SSM; product provided directly to AFSC)	Deliver completed project (new software release or new hardware configuration baseline, etc)	Program mgmt skills		Ability to understand system engineering principles	Systems engineering courses (there's a series of 3 systems engineering courses)	

Interview #10 (continued)						
CA	Work Activities	Skills	Knowledge	Abilities	Experience	Other/ Personality
Trade studies (integrating equip; new mission req's) - skills depend on report	Complete analysis; leads to report; consider all alternatives and choose best one	Program mgmt skills - for strategies				
		Systems engineering skills - needed for changing out a system & reconfiguring it				
Respond to software/hardware changes (req'ts)	Deliver completed project	Systems engineering skills				
		Program mgmt skills	Knowledge of depot process - how to issue work orders in depot environment	Experience as program mgr	Logistics mgmt courses - understand 2006 process	
Provide requirements & dollars; specify schedule - (info provided on work order)	Ogden returns completed project - work order gets closed out					
		Program mgmt skills				
Tasked them for support analysis on product - what is support structure of a product						
Provide requirements & dollars; specify schedule	Stakeholder returns completed project	Program mgmt skills	Knowledge of depot process - how to issue work orders in depot environment	Experience as program mgr	Logistics mgmt courses - understand 2006 process	

Interview #10 (continued)						
CA	Work Activities	Skills	Knowledge	Abilities	Experience	Other/ Personality
Provide requirements & dollars; specify schedule	Determine if job can be done organically if not contract out; reassess later	Program mgmt skills Verbal & written communication skills Proofreading skills	Systems engineering skills - for software			

Interview #11					
CA	Work Activities	Skills	Knowledge	Abilities	Experience
Replace ground control systems	Program mgmt - budgeting, funding	Good overall program/project mgmt skills (provides technical, budgeting, and scheduling skills & knowledge)	Knowledge of funding process (limitations, etc)	Ability to handle multiple projects & supervise project officers to keep projects going; good teamwork	Business/ financial (budgeting) background or training
	People skills			Ability to make good contract programmatic decisions	Training in acquisition reform (DAU courses)
	Communication skills	Ability to take system components & integrate them effectively	Ability to manage risk	Blend of ops & acquisition background (any command)	Need contacts in that area
				Strong technical background (mechanical, computer, electrical, or software)	Strong personality
				Lead engineer position (any type, any command)	Assertive personality
				Ability to make good judgment calls on tradeoffs with cost/schedule/ performance	

Interview #11 (continued)						
CA	Work Activities	Skills	Knowledge	Abilities	Experience	Other/Personality
		Ability to be detail oriented in reviewing many documents	Ability to negotiate well w/ contractor (communication)			
		Ability to make good judgment calls on tradeoffs with system cost/schedule/ performance	Ability to make judgment calls on progression of program - schedule slips			
			Ability to continually justify ongoing work in order to defend funding			
	System engineering integration & tests	Good overall program/project mgmt skills (provides technical, budgeting, and scheduling skills & knowledge)	Knowledge of computer/ network info			
		People skills (PR, personal interaction)	Knowledge of government funding rules			
		Configuration mgmt of baseline development system	Basic engineering knowledge			
	Software application development		Broad knowledge of software engineering		Software engineering background	

Interview #11 (continued)						
CA	Work Activities	Skills	Knowledge	Abilities	Experience	Other/Personality
	(Level II software maintenance coding)				Computer info/science background Network experience Programming experience (detailed oriented)	
					Experience w/ Capability Maturity Model (CMM) - industry std; corporations model off of	
Concurrently sustain & upgrade system	Remote site maintenance	Project mgmt skills Communication skills	Ability to develop, read, review, & redline TOs & engineering drawings (hardware oriented) Knowledge of government supply system	Ability to identify and know equipment	Experience w/ depot process (logistics of equip & parts)	
		Teamwork		Ability to respond efficiently & quickly to turn around items & to reduce mission downtime		
	Level II software maintenance coding		Broad knowledge of software engineering			

Interview #11 (continued)						
CA	Work Activities	Skills	Knowledge	Abilities	Experience	Other/Personality
Logistics mgmt for TOs/tech documentation	Project mgmt skills				Computer info/science background	
Configuration mgmt of operational system	Coordination skills	Basic common knowledge of configuration mgmt	Ability to understand software configuration mgmt		Good detailed work philosophy (very organized)	
Asset mgmt	Communication skills	Broad knowledge of customer usage of test assets	Ability to put good processes in place, maintain, & enforce		Detailed-oriented & organized individual	
Sustainment & operational performance of current systems	Logistics mgmt (TOs)		Ability to manage all facets of test assets (maintenance & scheduling)		Assertive personality	
			Ability to understand players involved	Ability to communicate well with multiple organizations		
				Ability to deconflict schedules		
			Understanding of hardware & equipment			

Interview #11 (continued)						
CA	Work Activities	Skills	Knowledge	Abilities	Experience	Other/Personality
			Thorough understanding of govt supply system			
	Level II software maintenance coding	Broad knowledge of software engineering			Computer info/science back-ground	
	Remote site maintenance	Project mgmt skills	Knowledge of government supply system	Ability to develop, read, review, & redline TOS & engineering drawings (hardware oriented)	Experience w/ depot process (logistics of equip & parts)	
Activities focused more on development	System engineering Integration & test Software development					
Provide capabilities that civil community wants (new & better performance)	Systems engineering (software development)		Ensure systems engineering integration is done to provide increase capability & accuracy			

Interview #12						
CAs	Work Activities	Skills	Knowledge	Abilities	Experience	Other/ Personality
Responsible for tactical terminal sustainment effort - focuses on ground systems (ensuring systems stay operational - includes equip upgrades, mods, software upgrades, and reliability	Ensuring you have proper metric maintenance data collection system in place	Program mgmt skills	Knowledge of funding controls/limitations	Ability to identify financial requirements	1-2 tours in a product ctr (in acquisition environment) complemented with 1-2 tours at a logistics ctr working sustainment programs (ALC)	Strong supervisor
	Monitor metrics, analyze, and take appropriate mgmt action to ensure he understands where his problems	Strong mgmt skills	Understanding of supply system	Ability to speak Logistics lingo	Single operational tour	Emphasis in Materiel Command career field
	Interface with Space Cmd folks in Colorado Springs (liaison tasking)	Technical background (ability to understand technical problems & technical solutions)	Understanding of operational requirements	Ability to speak language of the operator	Leadership roles (learn how to be effective supervisor)	(experience leading large organization)
		Contract mgmt skills				
		Ensure sufficient budget				

Interview #12 (continued)					
CAs	Work Activities	Skills	Knowledge	Abilities	Experience / Personality
	Look ahead and forecast where he's going to have problems	Communication skills			
	Collect resources (personnel/ financial) and apply them properly Ensure he has proper req's set to allow user to fund what he has to do				
	Reporting tasks - backup to central mgr so they can understand the health of their systems; SSM must convince SPD that he/she is taking appropriate actions				
	Organize unit (keep functioning; ensure it's structured properly) Keep people trained				Ability to understand what budget is vs what the req's are & translate req's into dollars
	Ensure he has right requirements set in order to establish funding baseline				Experience in acquisition/logistics areas
	Responsible for interacting with single customer rep				

Interview #12 (continued)					
CAs	Work Activities	Skills	Knowledge	Abilities	Experience
					Other/ Personality
	Control funding - measure contractor performance; ensuring appropriate use of funds; assessing earned value from contractor & projecting schedules (contract mgmt)			Ability to spend funds in timely manner	Experience in acquisition/logistics areas
Care & feeding of people (leadership abilities)	<p>Senior DMSP rep</p> <p>Sets example</p>			Leadership ability	
	Communicate mission & objectives to his people (represents what SPD wants)	Communication skills	Understand SPD's mission & objectives		
	Write/submit award packages/OPRs (timely and quality products)	Written communication skills			
	Responsible for submitting requisitions for personnel billets & filling those positions	Written communication skills			
	Leading people (leadership responsibilities)				

Interview #13					
Critical Activities	Work Activities	Skills	Knowledge	Abilities	Experience
Provide sustainment support	Care & feeding of existing system Software upgrades Complying w/ security accreditation of system Answering user questions at system level				Logistics mgmt experience (346 series); Acq Logistics Level III Strong communication w/ users (verbal/ written) Dedicated
					Logistics mgmt experience (346 series); SPO or ALC
Provide system status	Coordinate w/ users Provide inputs Project needs & depot maintenance tasks (what's failing?) Project TO changes Project contractor logistic req'ts Chair Product Improvement Working Group				Strong communication w/ users (verbal/ written)
					Logistics mgmt experience (346 series); SPO or ALC
Provide budget/POM					Strong communication w/ users (verbal/ written)

Interview #14						
Critical Activities	Work Activities	Skills	Knowledge	Abilities	Experience	Other/ Personality
Provide range instrumentation system for data acquisition processing & display	Critical accomplishments all provided through acquisition contracts (responsible for collecting req's & contracting for them)	Financial & contract mgmt skills	Technical knowledge	Experience in space and range areas; familiar with space ballistic launch systems	Education - electrical, civil, or mechanical engineering	
	Provide sustainment support to existing systems & new developments	Admin skills	Customer-focused			
	Provide depot support	Configuration mgr (maintain drawings that describe conf. Mgmt)	Responsive		High level of competence	
	Provide software/COTS/ or commercial off-the-shelf with additional level of development					

Interview #15

Traits

- Independent
- Confident
- Intelligent
- Excellent communicator (w/ customers)
- Poised under pressure
- Art of compromise (user req'ts vs what can be done)
- Ability to persuade
- Ability to lead teams (own people & others)
- Leadership abilities
- Quick learner
- Courageous (take on challenges)

Experience

- Acquisition & sustainment experience (know system)
- Knowledge how complex & control systems operate
- Depot experience (know how system go through depot system)

Biggest challenge

- Understand pots of money

Training

- Contract mgmt courses
- Financial mgmt courses

Interview #16

KSA's and experience required:

Logistics experience (supply/maintenance/transportation)

- Experience working in several *operating* commands
- AFMC for depot experience

Experience in engineering interfaces (general knowledge)

"Big 3" - at least participate & be involved at the working level in these areas will help them have the insight necessary to do the sustainment job ("all this does is give you a license to compete or a license to apply; it doesn't guarantee it" - includes training also)

- Depot experience
- Operational experience (no specific command; ability to understand problems at that end)
- Acquisition experience (involved at working level)

Training:

Acquisition logistics training - Level III (cover funding)

Program mgmt - Level III

Nothing specific for education (has seen good people come out of different fields)

- Has seen people who have had all of the academic credentials, and couldn't do anything

Traits - hard-working, smart, capable, and self-motivated (for civilians, it's an AF environment, so the successful civilians work like the AF; they don't watch the clock--they're self-motivated)

Success depends on experience, training, and personality traits

- Responsible for acquisition logistics in addition to sustainment
 - Responsible for systems engineering of the program (key item)
 - Responsible for logistics support (depot level)
 - Spare parts, maintenance (including technical data)
 - Responsible for funding (advocates requirements to using command and AFMC); funds come from both commands for diff purposes; he has to synchronize that funding
- Does a lot of responsibilities with contracting
 - All equipment is either supported at the depot level by contractor or organically
 - SSM is responsible for both at the depot level
- Engineering interface -- ensure new system interfaces with current system

Interview #17

- * Good business sense (look for business type mentality)
 - Financial mgmt courses
 - Basic understanding of PPBS process
 - Contract mgmt courses
 - Understanding of ALC
 - Good understanding of market research
 - MS in Business Administration (formal education)
 - Program mgmt courses - different levels
 - DAWIA (Defense acquisition workman's improvement act) member
 - APDP courses
- * Experience in SPO (acquisition product ctr)
- * Experience in ALC (difficult for civilians - people who work in product ctr don't want to go to ALCs because they don't promote as quickly)
- * Experiences an individual should have before becoming an SSM

Does not agree that person should have heavy ALC background; "person should have business mentality (empowerment) because that's what subordinates are doing.

If I could chart my own path to success: absolutely positively financial courses; understanding the PPBS; couple of courses on financial mgmt; as important contracts, contracts mgmt. Building the basis of a business mgr--finance and contracts. If you know those two things, you can learn everything else. Also understanding of ALC, and good understanding of market research (part of contracts; keeping track of markets and commodities).

Interview #18

Critical Accomplishments Sustainment at very high level

- Maintenance – ability to do on & off-site maintenance throughout whole spectrum of time urgency
 - Hardware – most cases on-site
 - Software – off-site maintenance
 - Scheduled – applies to hardware & software
 - Unscheduled – applies to hardware & software
 - Emergency depot level maintenance
- Ability to do sustaining engineering functions
 - Driven by obsolescence – dealing with things no longer sustainable through factory or classic depot
 - Deal with vanishing vendors – may not be obsolete technology, but person you're dealing with all of a sudden disappears
 - When dealing with obsolete technology or vanishing vendors, need to determine how to reverse engineer the item and find an in-house capability or commercial capability to re-buy or replace vanishing item; so there's an engineering discipline there as well that's required
- Provide service of being able to accommodate obsolete equipment and vanishing vendors

Knowledge, skills, abilities

- Need acquisition logistician set of skills (no specific AFSC) – SSM looked as senior logistician to look at sustainment logistics and acquisition logistics
 - SSM needs skills required to bring on the ILS (integrated logistics support) products – training, trainer, spares, TOs...10 elements of ILS
 - SSM should be able to perform that function
 - Senior individual

Skills/abilities

- Leader-be; be able to run medium-sized organization
 - People skills; ability to supervise, make hiring, firing, selection decisions (SPD may be involved as well) – internal interfaces
 - Need certain amount of skills to work externally to deal with customer & customer's customer; able to work with people, communicate, understand their needs, present data in format that they can understand—communication skills (internal & external)
- Managerial skills
 - Organizational skills; able to figure out how to organize/develop product for particular system
- Technical area
 - Program management skills—cost/schedule/performance

Interview #18 (continued)

- Cost/schedule can be called business skills; how do you budget, how do you do cost estimates, how do you cost account, classic FM functions
- Other half of business set would be contracting side; what kind of contract do you have; how do I make modifications to that contract; how do I go through a source selection activity; who are the contractors; what are their strengths and weaknesses, etc.
- Performance & risk – need to have certain judgment from technical standpoint; don't need to be an engineer; need to have technical judgment to mix with business side to understand what you're doing
- Need knowledge of products; what it takes to generate a TO, technical manual, what is life cycle of a document like that, validation & verification—how long does that take
- There's a set of business skills, technical skills, and engineering skills, & need to take them specifically to logistic processes that SSM manages (what are the technical requirements necessary to do depot maintenance on this weapon system—may be specific knowledge)

Experience

- Many roads to there...most successful one (from acquisition side & people he dealt with on support & logistics side)
 - Those who have experience with a product in working directly with a product would be the better road to follow to become an SSM; contracting types can, financial types can, engineering types can also; those who become program managers early, have responsibility for a product (whether it's a radio or instrument or motor) those are the ones who see the big picture earliest (Lt/Capt/GS-7 level) and is the most likely road to an SSM
- Experience in ALC would help, but is not necessary
- Another skill set may be working in a SPO as an acquisition logistician; that would be a good experience to have, but it's not mandatory; can get same experience when doing a mod at an "ALC"—still need to generate TOs, training, spares, etc. (can get that skill set at the field at classic logistics site just as easily)
- Another skill - SSM needs to have certain familiarity or knowledge with acquisition process; understand acquisition process so they know where they fit in and where sustainment fits into life cycle management

Personality Traits

- Need leadership skills to be effective; ability to deal with people
- Management skills
 - No extraordinary personality traits required as long as they have leadership skills

Interview #19

Products/services

- Responsible for sustainment & depot level maintenance of range
 - Provides information on recapitalization projects & funds requirements with Space Command; what kind of things they want to work on this and next year as far as getting equipment & replacing items (prioritizes w/ Space Command); manages sustainment money (3400) & works to help determine how stakeholder will spend their 3080 funds; works with them to ensure they allocate funds the right way
 - Helps with budget type things; helps determine what kind of funding is needed to do sustainment
 - Once they figure out how they're going to spend the money, SSM manages those projects

Knowledge, skills, abilities

- Knowledge of how range operates; relies a lot on the people who are right on site; needs to have good idea of how range operates
 - Management and communication skills required
 - Leadership skills
 - Good at directing people; putting team together
 - Planning & scheduling
 - Good financial knowledge; be able to make a call on what funds are required for specific projects
 - Needs to know contracting things too; how contract is structured

Experiences

- Being in SPO as program manager; deal with cost/schedule/performance; should begin early in career—the more the better
 - Provides contracting & financial experience
 - Defense Systems Management College (DSMC) provides program mgmt course—covers program management, leadership, financial, contracting, and cost estimating, systems engineering, testing, etc.
 - APDP courses – try to get certification in logistics and program management (level III)
 - Technical knowledge is important
 - Engineering or at least logistics background

Personality traits

- Confident
- Decisive
- Makes time for people and helps them out

Interview #20

- Responsible for delivering whatever system is required to meet new requirements; delivers product that's ready for them to use operationally
 - Tasks – talks to managers of the contractors to ensure things are going smooth; if there are any problem areas, he can address them
 - Knowledge & skills – overall project management skills & good people skills to get things done & get people motivated; needs fairly in depth knowledge of contracting; background in acquisition since he spends most of his time acquiring new systems; have understanding of space command & how they work; depends on space command for money; needs good budgetary/financial skills to come up with good financial plan to resolve the requirements that are given to him
 - Experiences – acquisition background or project management background would be good jobs to come from
- Conducts studies to make sure that the equipment that's getting old and needs to be replaced or will no longer be manufactured can be replaced before it's outdated
 - Knowledge, skills, abilities – depends on his job for that; background on depot management; how depot works; understand supply system & how they get parts—how it all fits together; understand depot and CLS (contracted logistics support) processes
- Provides look as to where they are with sustainment on a continuous basis; sustainment review boards conducted to go over equipment that's out there and what their status is
 - Sustainment review board conducted
 - No specific knowledge, skills, & abilities
- Personality traits – a lot of initiative; strong character (making some pretty important decisions for the government & dealing with contractors at the same; while dealing with contractor, they need to be strong & not let the contractor take advantage of the government)

Interview #21

- Member of sustainment IPT, which is a Level III IPT on the program
 - Supports IPT; they interact with each other; provide insight into current issues
 - KSAs
 - Technical insight as far as what the requirements were
 - Good handle on EEIC structure, colors of money
 - Communication skills (verbal & written)
 - Experience
 - Good program management skills
 - Ability to manage existing program
 - Ability to plan for the future
 - Ability to manage staff
- Provides status reports; insight into what could be put on contract & jointly figured out what the priorities were to go work
 - KSAs – organizational skills relative to data (how to organize data); identify hot spots & what needs to be worked relative to that
 - Experience – experience with hardware & software of the system; good technical base
 - KSAs for “insight into what could be put on contract” – knowledge of government procurement, government contracts, & industry contractual abilities (more in terms of understanding different colors of money & what can be done with them)
- Keeps track of operational availability of system
 - Knows where hot points (problems) are
- Provides preliminary draft SOW from the technical assessments & special studies
 - KSAs – understanding where customers’ concerns are & interpreting them & putting in draft SOW; communication skills
- Personality traits – ability to get along with people; level headed thinking; ability to handle spur of the moment problems & not overly reacting to them

Interview #22

Products/services

- Provide specialized engineering support because of problems with obsolescence or have vendor who is no longer willing to support AF in a particular arena (vanishing vendors)—can't find the parts anymore to support the weapon systems
 - Perform engineering analysis to find suitable substitute or propose modification or upgrade to their system
 - Complete analysis to determine what specs requirements are in looking for a substitute item to put into that place
 - If substitute item is used, SSM would do the TO updates to maintain configuration control (document change)

Knowledge, skills

- Work w/ logistics managers since they are the ones responsible for the overall health & well-being of the support of the sustainment of the system; work with their equipment specialists because they are responsible for reviewing data changes & also the engineering to do the analysis to ensure new parts being brought into the system do not impact anything else
- All knowing person
- Experience in depot functions—maintenance & item support because then they know what it takes to get to the end products
 - Earlier in career
- Acquisition experience & logistics experience is critical to SSM's career progression because then they get an appreciation for the impact of the decisions made early in the acquisition program in the sustainment of the life cycle of that program; live with the decisions made (a lot of times they cut the sustainment side to save costs so they can put more in the acquisition & it makes it very costly to sustain the system)
 - Program mgr or acquisition logistics position
 - Earlier or later in their career when they are actually a program manager which generally is a little later (Major & above) when they do the acquisition & major upgrades
- Logistics management background
 - Earlier in career when they have hands-on experience
- Engineering skills not required; they have good engineering staffs to support them
- Helpful to understand the processes that they have to go through in order to actually sustain weapon systems
- Operational background helpful; gives them better idea & understanding of customer's perspective & why it's critical to keep things up & running all the time
 - Earlier in career when they are actually doing the operations of the systems as opposed to later when they are managing at the higher levels

Training – APDP courses

- APDP Logistics certification – minimum of Level II; probably Level III (more training required to get logistics certification to get program manager certification)

Interview #22 (continued)

- APDP Program Mgr certification – Level II
- Funds management is critical for SSM to know; job requires them to be conversant in those various types of money because there are rules that apply to each area; they always have a really strong resource advisor to help them, but it certainly makes it a lot more efficient for them if they know how to use the different kinds of money
 - Experience as a program manager & as a logistics manager because you are required to use all kinds of money; you have to be conversant in it just to do your job
 - Early in career (Capt or GS-12); gives them wide variety; if they are working programs where they are actually doing modifications or system support of some type (whether it be on the maintenance side or the modification side or upgrade), they are going to be dealing with all different types of funds & getting good practical experience in how to sustain the system

Personality traits

- Personal thing – depends on how they choose to manage
 - However, people who are people oriented are more effective managers, as well as those who believe in functioning as a team; encourages teamwork

Interview #23

Critical Accomplishments

- Responsible for sustainment of several systems
 - Provide support for several other ground-based space sensing platforms
 - KSAs – senior-level manager within AF hierarchy
 - Extremely skilled in management of vast diversity of people & resources
 - Strong people skills orientation
 - Decisive; position requires decisions to be made in timely manner & the decisions need to be on the positive side (decision making skills)
 - Understand the key tenets of the processes that govern the acquisition community—requirements process, acquisition process, & PPBS (funding)
 - Knowledge in these processes is paramount
 - Does not need to have a strong technical background, but needs strong managerial approach to managing complex technical aspects of the systems they have to support
 - Communication skills (articulate in presenting programs); verbal & written

Experiences

- Depending on their past, within 63 career field! Can also come from logistics career field also, especially acquisition logistics
- Coming from engineering function into program office & working various elements of the program office; not as program manager but as configuration manager; growth over time, come in as a Lt and get assigned to configuration manager or program control or data; working in a program office & work up to being a project officer in a program management function; then go to a branch, work as either a systems manager or you become a program manager; you can get some career broadening areas in the various disciplines within logistics—whether it be transportation or maintenance or supply (could be done at the beginning as second assignment; in 2d or 3d assignment, need advanced academic degree; need to target a command position to get depth & breadth of managing people; by that time they'll be ready to fulfill an SSM position or would have knowledge by that time)

Personality traits

- Not personality driven, it's more depending skills & knowledge

Appendix B: Interview Responses - Question 4

What are the knowledge and skills associated with each of the work activities identified?

Good interpersonal skills were identified as one of the most important skills managers should have. Interpersonal skills refer to the ability to understand feelings, attitudes, and the motives of others; ability to communicate clearly and effectively; and the ability to establish cooperative relationships (Yukl, 1998:235). SSMs need these skills to communicate with a wide variety of individuals including their subordinates, contractors, and SPDs. These skills are also important when presenting and defending program requirements, status, and funding.

SSMs also need to have a solid understanding of the funding rules and limitations. According to one individual, you either “know money or no money” (Personal Interview with SSM, Mar 00). SSMs who understand the different types of funds available are better able to justify and receive the funds needed for their programs. Although SSMs have a strong resource advisor to help them with funding issues, they will be more effective if they understand how the funding process works and the types of funds required for specific projects (Personal Interview with Stakeholder, Jun 00).

With the large number of sustainment activities that are currently being contracted out, the SSMs also need to have a good understanding of contract management (Personal Interview with SSM, Jun 00). Contract management knowledge helps SSMs communicate contract requirements, manage contractor support, and complete contract actions required for system modifications and upgrades.

Project/program management skills are also important skills for any SSM to have. These skills are crucial for planning, organizing, staffing, executing, and controlling programs. SSMs use these skills when performing program reviews—reviewing funds provided, determining percentage of funds being contracted out, and projecting program completion dates and execution rates.

Appendix C: Interview Responses – Question 5

What job experiences, training, or education will help obtain the knowledge and skills identified? At what point in an individual's career should he or she obtain these experiences?

Operational experience was identified as being essential to understanding the users' needs and concerns. Having worked with the users, SSMs have a "better understanding of their customers' perspective and why it is critical to keep systems up and running at all times" (Personal Interview with Stakeholder, Jul 00). They are better able to serve their customers. Operational experience is best obtained early in their career when they have more hands-on training.

Education With Industry is a 12-month program that provides individuals with "on-the-job education, experience, and exposure to private sectors of the economy not available through formal courses of instruction" (AFPC, 15 Jan 01). This program helps individuals improve their management ability and technical competence. Individuals should seek this type of experience during the first three stages of their career—up to the rank of Major.

Experience working at an Air Logistics Center provides individuals with the knowledge needed to ensure systems remain operational. Working at Air Logistics Centers, SSMs learn to forecast depot maintenance tasks and repairs, perform technical order changes, and communicate contract requirements. This experience is needed during all stages of an individuals' career, but the type of experience changes in importance. During the early stages, individuals obtain technical experience, and they obtain management experience during later stages.

Working at a System Program Office is also essential to a successful career. The experience provides SSMs with a better understanding and knowledge of the acquisition process. Working in a System Program Office as well as an Air Logistics Center also provides SSMs with the knowledge and skills needed to understand the funding process, which is crucial to their success. From those experiences, SSMs learn to forecast budget requirements; track cost, schedule, and performance data; and learn to survive in a constrained budget environment. These experiences also help SSMs obtain some knowledge in contract management. They learn to modify contract actions and compare contract requirements against contractor resources and other projects, which allow them to determine if the contractor can perform the work required. Working on both the acquisition and sustainment side gives SSMs a better appreciation for the decisions made early in the acquisition process. Many programs cut sustainment dollars in order to save costs, which can make it very difficult to sustain the systems. Having worked on both sides, SSMs will see the impact those decisions have on system sustainment (Personal Interview with Stakeholder, Jul 00). System Program Office experience is required during all stages of an SSM's career.

As for training and education requirements, the most cited included a BS and/or MS in Business Management; Professional Military Education courses such as Squadron Officer School and Air Command and Staff College; and APDP courses in Acquisition Logistics, Contract Management, Program Management, and Systems Engineering. Having a BS and/or MS in Business Management helps individuals understand the various facets of the business world—planning, organizing, leading, and controlling. PME courses provide individuals with an opportunity to refine their interpersonal skills as well as their leadership

skills. APDP courses help individuals obtain funds management, contract management, and project/program management knowledge. Specifically, the Acquisition Logistics courses cover areas such as configuration management interface, life cycle costing, and program supportability planning. The Contract Management courses discuss acquisition planning, contracting methods, financial management, and disputes resolution. Individuals taking the Program Management courses learn about funds, logistics support, systems engineering, and contract management. The Systems Engineering courses teach individuals how to manage technology obsolescence, analyze and solve technical problems, and forecast cost, schedule, performance, and risk issues across the acquisition life cycle (DAU, 14 Jan 01).

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